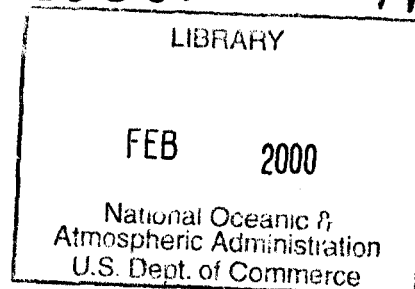


INDIA WEATHER REVIEW, 1936.

ANNUAL SUMMARY.

PART C.

STORMS AND DEPRESSIONS.



DEPRESSIONS AND CYCLONIC STORMS.

During the year 5 storms and 9 depressions formed in the Bay of Bengal, 1 storm and 1 depression in the Arabian Sea and 1 depression over the United Provinces. The dates on which the storms occurred and the greatest barometric depths observed are summarised in the table below:—

Locality.	Month.	Date.	Greatest observed barometric depth.
Bay of Bengal . . .	April . . .	21st—26th	0·60"
Bay of Bengal . . .	May . . .	22nd—29th	1·00"
Bay of Bengal . . .	June . . .	10th—17th	0·40"
Arabian Sea . . .	June—July .	28th June—4th July.	0·26"
Bay of Bengal . . .	September—October.	29th September—7th October.	0·80"
Bay of Bengal . . .	October . . .	25th—31st	0·50"

The detailed descriptions of these storms and depressions are, as usual, followed by a list of western disturbances of

the year, of the more important local storms, and of the localities in which winds of force 9 or more were experienced by ships in the Indian Seas.

1. *Severe Storm of 21st to 26th April 1936 in the Bay of Bengal.*—The isobaric chart of the 21st morning indicated a low pressure area in the neighbourhood of the Nicobar Islands. Weather logs of ships of the date suggested that a temporary advance of the southwest monsoon was occurring to the south of Lat. 8°N. with considerable force. *S. S. Graciosa* and *S. S. Atlantic Maru* which were near Lat. 6½°N. and Long. 91°E. on the morning of the 21st experienced strong S or SW-ly breeze with rough seas and rainy and squally weather. The upper winds over Port Blair were ESE-ly 5 to 7 B. S. and over Victoria Point SE to SSE 5 B. S. between 1 and 2 km. Car Nicobar had then E-ly breeze of force 4 and had registered a rainfall of 1½" at 8 hrs. of the 21st, suggesting that conditions had become unsettled in the southeast Bay by the morning of the 21st with central region near Lat. 8½°N. and Long. 92°E.

By the 8 hrs. of the 22nd the unsettled conditions had developed into a depression with central region near Lat. 9½°N. and Long. 90°E. *S. S. Atlantic Maru*, *S. S. Graciosa* and a number of other ships near Lat. 6½°N. and Long. 89°E. continued to experience strong SW-ly breeze with rough seas and squally weather between the 21st and 22nd. The log of *S. S. Begum*, bound for Tuticorin from Bassein (Burma), which passed at a distance of less than 60 miles from the centre of the disturbance in the evening of 22nd is very interesting in this connection and is given below:—

S. S. Begum.

Date.	Hr. of obsn.	POSITION.		WIND.		Bar.	Sea.	Swell.	REMARKS.
		Lat. N	Long. E.	Dir.	For.				
14 April .	13	12 12	89 17	ENE	6	29·55	Rough .	Heavy swell .	Rain from 12-30 P.M.
	14	12 06	89 10	NE/E	6	29·50	Very rough	Heavy swell .	

National Oceanic and Atmospheric Administration

Environmental Data Rescue Program

ERRATA NOTICE

One or more conditions of the original document may affect the quality of the image, such as:

Discolored pages

Faded or light ink

Binding intrudes into the text

This document has been imaged through the NOAA Environmental Data Rescue Program. To view the original document, please contact the NOAA Central Library in Silver Spring, MD at (301) 713-2607 x124 or www.reference@nodc.noaa.gov.

Information Manufacturing Corporation

Imaging Subcontractor

Rocket Center, West Virginia

September 14, 1999

Date.	Hr. of obsn.	POSITION.		WIND.		Bar.	Sea.	Swell.	REMARKS.
		Lat. N.	Long. E.	Dir.	For.				
22nd April— <i>contd.</i>		° ' ,	° ' ,						
	15	12 00	89 03	NE	7	29.44	High .	Heavy swell, long.	Violent squalls from 2-30 P.M.
	16	11 55	88 56	NNE	8	29.35	Very high .	Heavy swell, long.	Violent squalls, Torrential rain.
	17	11 48	88 49	N	10	29.31	Very high .	Heavy swell, long.	
	18	11 43	88 42	N/W	9	29.35	Very high .	Heavy swell, long.	
	19	11 37	88 35	NW	9	29.38	Very high .	Heavy swell, long.	
	20	11 32	88 28	NW	10	29.45	Very high .	Heavy swell, long.	Continuous fierce squalls.
	21	11 24	88 24	WNW	10	29.53	Very high .	Heavy swell, long.	Torrential rain.
	22	11 16	88 21	WNW	9	29.61	High .	Heavy swell, long.	
	23	11 08	88 18	WNW	8	29.66	Very rough	Heavy swell, long.	Squalls less frequent.
	24	11 00	88 14	WNW	7	29.64	Very rough	Heavy swell, long.	Wind and sea abating.
23rd April .	1	10 52	88 09	WNW	7	29.67	Very rough	Heavy swell, long.	Continuous heavy rain.
		10 44	88 04	WNW	7	29.65	Very rough	Heavy swell, long.	Occasional squalls.
	3	10 36	88 00	WNW	6	29.66	Very rough	Heavy swell, long.	
	4	10 29	87 56	W	6	29.66	Rough .	Heavy swell, long.	Drizzle.
	5	10 22	87 51	WSW	6	29.64	Rough .	Heavy swell, average length.	Weather cleared.

It will be seen from the above log that the ship experienced winds of force 8 to 10 continuously between 16 hrs. and 23 hrs. with violent squalls and heavy rain. This shows that the depression intensified rapidly into a storm of severe intensity, but of small extent, by the evening of the 22nd with its central region at 17 hrs. near

Lat. 11°N. and Long. 89°E. and the lowest pressure recorded by the ship's barometer at 17 hrs. was 29.31" (corrected).

The above conclusions are supported by the observations given below recorded on board *S. S. Yoma* which also passed within about 60 miles of the centre of the storm between 20 hrs. and midnight experiencing winds of force 8 to 10.

It is also reported that the wireless aerial of the ship was carried away by the storm at 1905 I. S. T. on that date. The lowest barometer recorded by this ship was 29.32"

(corrected) at 21 hrs. According to both these ships the pressure deficiency at the centre of the storm was of the order of 0.50".

S. S. Yoma.

Date.	Hour of observation.	POSITION.		Bar.	WIND.		Sea.	Swell.
		Lat. N.	Long. E.		Dir.	For.		
22nd April .	1130	12 28	90 31	29.66	E/S	4-5	Moderate to rough . . .	Low swell, long.
	1600			29.50	E	6		
	1800	12 14	89 23	29.39	E	7	High	Confused swell.
	2000			29.37	E	8		
	2100			29.32	NNE	9		
	2330	12 05	88 20	29.52	NW	10	Very High	Confused swell.

The following remarks contained in the log of this ship are also very interesting :—" During the forenoon watch on this date the sky became overcast and frequent rainsqualls were experienced. The wind remained steady SE/E force 4. The barometer reading at 8 A.M. was 29.77". D. R. position at noon, Lat. 12°28'N. True course S55W. About 1 P.M. the wind started backing slowly and increasing in force, and the sea became very rough with a heavy swell from SSE. The lowest barometer reading was recorded at 9 P.M. when the corrected reading was 29.32". At 9.30 P.M. the barometer started to rise, at first rapidly and later, slowly. The wind at this time was NNE force 9 and at midnight had backed further to NW and increased to force 10, with a high sea and heavy swell. Violent squalls and continuous heavy rain made visibility very poor. At midnight the barometer had risen to 29.52" and position by D. R. was Lat. 12°05'N., Long. 88°20'E. Courses were altered to southward as wind changed and by midnight vessel was steering S40W. From then onwards, the barometer continued to rise and the wind continued backing but decreasing in force, until at 6 A.M. on 23rd April in D. R. Lat. 11°15'N., Long. 87°40'E. the wind remained steady at SW/W force 4 and the sea and swell were moderate."

The storm then began to move in a more northerly direction and by the 8 hrs. of the 23rd it was centred near Lat. 12½°N. and Long. 89°E. *S. S. Jalatarang* which was then about 100 miles to the southeast of the centre experienced high seas, southeasterly heavy swell and fresh gale from the SW or SE accompanied by heavy rainsqualls.

At 8 hrs. of the following day the cyclone was centred near Lat. 14°N. and Long. 89°E. The severe storm was then moving in a northeasterly direction towards the Arakan Coast and at 2 hrs. of the 25th the cyclone was centred near Lat. 15½°N. and Long. 90½°E. Diamond Island was then experiencing continuous strong gale with occasional hurricane squalls, suggesting that the intensity of the cyclone was unabated. At 8 hrs. of the 25th the cyclone had its centre near Lat. 16½°N. and Long. 91½°E. *S. S. Aletta* and *S. S. Deido* which were then within 100 miles of the cyclonic

centre experienced rough seas, heavy swell and moderate gale with occasional heavy rainsqualls.

Continuing to move in the northeasterly direction without diminution in intensity the storm was centred over Cheduba Island between 8 hrs. and 11 hrs. of the 26th when it had a barometric depth of the order of 0.60". Kyaukpyu and Sandoway each of which lay about 50 miles on either sides of the cyclonic centre experienced at the time continuous strong or whole gale (force 9 to 10) for 2 to 3 hours. The cyclone crossed the coast about the midday of the 26th and dissipated rather quickly after passing inland.

A harrowing tale of loss of life and property came from the districts which the storm struck, the Sandoway and Kyaukpyu districts suffering very heavily. The main telegraph line from Rangoon to Calcutta was severely damaged in the Prome--Taungup section. In villages on the coast, most houses were demolished either by the tidal wave or the strong wind. The stone pier of Andrew Bay Harbour at Sandoway was practically demolished. Some steam-launches, including *S. S. Trokijwa*, a mail-launch, were reported to have been beached. The following account of the damage is taken from an appeal for relief issued by the Commissioner of Arakan Division and President of the South Arakan Cyclone Relief Committee :—

"The storm of April 26 was unprecedented in its severity. Its centre crossed the coast, by way of Cheduba Island, where Sandoway and Kyaukpyu Districts meet, causing enormous havoc throughout the 40-mile width of its track. The pressure of the wind, helped by the rising tide, caused a tidal wave which reached the very foot hills of the main coastal range. Where it crossed the coast-line, the height of the wave was 16 feet above ordinary high-water-mark and all the flat low lying islands were submerged to a depth of 12 feet or more. In such places, the villagers and their cattle had little chance of escape and were trapped and drowned in scores. So strong was the wind that every tree in the region was stripped of all its leaves and palm trees were snapped in half. Even the strongest swimmers were beaten down and drowned. On higher land, houses and the granaries were swept away by the wind like straw and

the torrential rain destroyed all the grain which the villagers had stored for their own consumption until next harvest in December, as well as the grain required for sowing at the present season. Cattle were panic-stricken and great numbers were drowned by rushing headlong into the swollen creeks.

Altogether over 1,000 people were drowned or killed by falling trees and 30,000 homesteads destroyed with all their contents. About 8,000 head of cattle were lost and some thousands of acres of rice fields were damaged by salt water. Numbers of fishing craft were destroyed and wells made unfit for use."

2. *Severe Storm of 22nd to 29th May 1936 in the Bay of Bengal.*—The first signs of the advance of the southwest monsoon in the southwest Bay of Bengal were noticed on the 19th morning when observatories in Ceylon reported general moderate to heavy rain with 9" at Colombo. During the next two days this advance was maintained and on the 21st the monsoon had extended to the Andaman Sea when upper winds of Port Blair up to 2 km. (limit of P. B. ascent) were all from a SW-ly direction of force 6-7 B. S. With the strengthening of the monsoon in the south Bay conditions became unsettled on the 22nd morning in the southwest Bay and neighbourhood. By the afternoon of the same day these unsettled conditions concentrated into a depression with centre near latitude $12\frac{1}{2}^{\circ}$ N., longitude 83° E. The depression moved in a northeasterly direction and at 8 hrs. of the 23rd May, was centred near latitude $14\frac{1}{2}^{\circ}$ N., longitude $84\frac{1}{2}^{\circ}$ E. The depression continued to move in a northeasterly direction without any further intensification and on the 24th morning lay with its central region near latitude 17° N., longitude 87° E. In the course of the next 24 hours the depression moved in a more northerly direction and was centred on the 25th morning near latitude $18\frac{1}{2}^{\circ}$ N., longitude $87\frac{1}{2}^{\circ}$ E. By about 10 hrs. of the 26th the depression intensified into a storm centred near Lat. $19\frac{1}{2}^{\circ}$ N., Long. $87\frac{1}{2}^{\circ}$ E. Strong winds and rough seas were experienced by the ships to the south and east of the storm. *S. S. Winkfield* and *S. S. Khosru* which were within 100 and 200 miles respectively to the south of the storm reported SW-ly winds of force 8 B. S. at 0930 and 1030 I. S. T. respectively. According to the barometer readings of *S. S. Winkfield* the pressure deficiency at the centre of the disturbance at this time was of the order of 0.50"

The storm then began to move northnortheastwards and passed near the Sandheads on the early morning of the 27th, when it was of severe intensity, if one judges from the observations recorded at the Sandheads where SSE-ly winds of force 9 from midnight changing to S-ly at about 0400 hrs. of the 27th. At about 0600 hours the barometer fell to its lowest reading of 29.04" and the wind spun round to SSW, SW and WSW force 11. Precipitous sea, very heavy swell and winds continued almost throughout the day. At 8 hrs. of the 27th the severe storm was centred near Saugor Island and passed over the station between 10 hrs. and 12 hrs. in the noon. The highest wind recorded at Saugor Island was of 52 miles per hour in a gust from WSW. The pressure deficiency at this time at the centre of the disturbance was of the order of 1.0". In this connection extracts from the report of the Commander of the River Survey Vessel "*Guide*" belonging to the Port Commissioners of Calcutta, which was anchored in the Karapara creek at a distance of 17 miles to the north by east of Saugor Island Light House, and the log of the vessel are very interesting and are given below :—

"On the 26th, the sky was completely overcast with low-lying heavy oily coluds, which moved rapidly in a westerly direction. Throughout the day the wind blew from an E-ly direction, varying between ENE and E/S, accompanied by frequent rainsqualls.

The 27th dawned with similar signs, but more pronounced. The wind was still from the eastward, but increasing in force, and the squalls heavier and more frequent. At noon, however, the wind was noticed to abate, and at about 1300 hrs, it was practically calm, although the wind was noticed to veer from ENE through E and S to SW. At about 1430 hrs., it suddenly strengthened and blew from the westward, rapidly increasing to force 12 by about 1445 hrs. The rainfall during the calm period was slight, but a heavier driving rain was experienced with the increase of the wind. This strong blow from the westward continued for nearly four hours, accompanied by spells of heavy rainfall. Finally at about 2000 hrs. the wind abated and moved round to WSW.

The lowest pressure recorded was 28.91" at 1400 hrs. on the 27th, and the strongest blow was experienced at 1445 hrs, when the force was quite 70 miles per hour."

R. S. V. Guide.

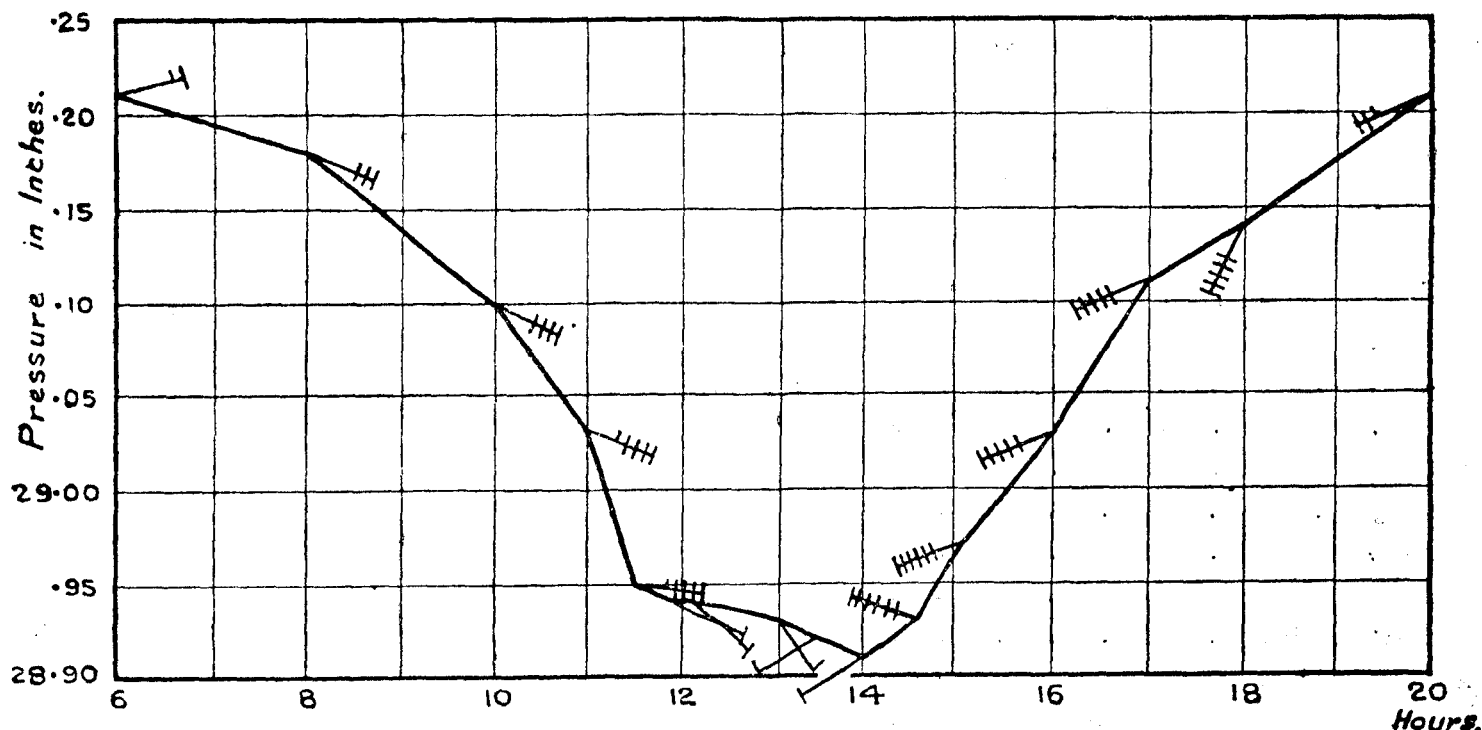
Date.	Hr. of obsn.	Wind.		Remarks.	Bar.*	Thermometer.
		Dir.	For.			
27th May	0600	E/N	3	Squally	29.21	83
	0800	E/S	5-6	Do.	29.18	83
	1000	E/S	7-8	Do.	29.10	83
	1100	E/S	8-9	Do.	29.03	83
	1130	E/S	8-9	Do.	28.95	83
	1155	ESE	2	Drizzle	28.94	83
	1205	SE	2	Drizzle	28.94	83
	1300	SE	1	—	28.93	83
	1330	WSW	1	Drizzle	28.92	84
	1400	SW/W	2	Drizzle	28.91	84
	1445	WNW	12	Rain	28.93	84

R. S. V. Guide—contd.

Date.	Hr. of obsn.	Wind.		Remarks.	Bar.*	Thermometer.
		Dir.	For.			
27th May—contd	1505	W S	11—12	Rain	28.97	84
	1600	W/S	9—10	Squally	29.03	84
	1700	W/S	9—10	Squally	29.11	84
	1800	SW/S	9—10	Squally	29.14	84
	2000	WSW	4—5	Squally	29.21	82

* The Barometer readings were observed with a compensated aneroid, with corrections applied.

The Pressure and wind data in the above log have also been plotted against time in the diagram below. It is interesting



Wind and Pressure Data Recorded on "R. S. V. Guide" on 27-5-1936.

to note from the above that the wind which was blowing from E/S with force 8—9 B. S. at 11-30 hrs. suddenly died down to force 2 from ESE at 11-55 hrs. It was from SE of force 1 only at 1300 hrs. and shifted round to WSW force 1 at 1330 and of force 2 B. S. from SW/W at 1400 hrs. Then it rose again suddenly to force 12 B. S. from WNW at 1445 hrs. The barometer readings also are very interesting and show that the barometer fell rapidly between 0600 and 1130 hrs. from 29.21" to 28.95" and then slowly to the lowest value of 28.91" at about 1400 hrs. The pressure deficiency at this time at the centre of the disturbance was of the order of 1.00". From 1445 hrs. the pressure rose again rapidly up to 2000 hrs.

The above facts show clearly that while crossing the coast by the midday of the 27th the severe storm had a clam centre in its core, the diameter of which was about 15 to 20 miles.

Thereafter while moving in a northeasterly direction the severe storm weakened and filled up near Mymensingh by the early morning of the 29th.

Under the influence of this disturbance, the monsoon established itself in Burma and northeast India and fairly widespread thunderstorm-rain also occurred in the central parts of the country and the north Madras coast between the 22nd and 26th of the month. Rainfall was very heavy in East Bengal and Assam, Cherrapunji recording 21" and Shillong 15" on the 29th morning, as a result of which severe floods occurred in the Brahmaputra and other rivers of Assam. Many of these overflowed their banks and are reported to have carried off hundreds of cattle and to have rendered a number of families homeless. Some of the notable falls of 5" and above are given in the table below. Heavy landslips occurred on the Darjeeling-Himalayan Railway. Telegraphic and telephonic communications were seriously dislocated, the worst disturbance being on the Calcutta-Rangoon section both *via* Arakan and Assam. Great damage to crops and property was experienced in East Bengal and Assam. In Tura, the headquarters of the Garo Hills Districts, nearly every building is said to have been damaged owing to incessant and heavy rain accompanied with fierce gales, Lowlying areas in a number of towns were inundated.

Several boats were lost in the rivers and it is reported that, were it not for the timely warnings given through the Port

Commissioners and the Police, the toll would have been much greater.

Station.	27th.	28th.	29th.	30th.	31st.
<i>Bengal.</i>	"	"	"	"	"
Diamond Harbour	7	..	..	..
Canning Town	8	..	..	..
Kalaroa	6	..	..	..	..
Tamluk	8	..	..	..	..
Kukrauli	8	..	..	..	..
Munshiganj (Dacca)	8	..	..	..
Kapasial	6	..	..
Kishorganj	6	..	..	..
Netrokona	6	..	..	..
Durgapur	7	..	..	..
Patuakhali (Backerganj)	9	..	..	..
Pirojpur	7	..	..	..
Barisal	7	..	..	..
Bhola	8	..	..	..
Daulatkhan	12	..	..	..
Chittagong	6	..	..
Comilla	14	..	..	..
Brahmanbaria	7	..	..	..
Ramchandrapur	6	..	..	..
Noakhali	11	..	..	..
Lakshimpur	10	..	..	..
Rangamati	7	..	..
Barkal	8	..	..
Lama	6	..	..	..
Kaptai	8	..	..	..
Agartala	7	..	..	..	..
<i>Assam.</i>					
Kampur	7	..	..
Lanka	6	..	..	..
Lumding	7	..	..
Lallakhal	6	..	..
Karimganj	6	..	..
Samanbagh	6	..	..	5
Habiganj	8	..	..	..

Station.	27th.	28th.	29th.	30th.	31st.
Baikunthpur	7	..	..	..	..
Sunamganj	7	6	..	..
Bikrampur	7	..
Tura	5	..	7	..
Dalu	6	..	..
Shillong	6	15	..	..
Upper Shillong	7	13	..	..
Mawphlang	9	19	..	..
Cherrapunji (Police Station)	10	23	..	..
Cherrapunji (Welsh Mission House)	15	25	..	..	..
Jowai	7	11	..	..
Hailong	6	..	..
Jatinga Valley	8	..	8	5
Harangajao	8	..	..	..
Maibang	6	..	..
Henima	6	..	..
Tamenglong	6	..	..	..
Kaugpokpi	8	..	..
Sialsuk	12	..	..
Lungleh	8	..	..
Sherkawn	7	..	..
Demagiri	8	..	..	..

3. Storm of 10th to 17th June 1936 in the Bay of Bengal.—

A strengthening of the monsoon occurred in the Bay of Bengal on the 8th June. On the morning of the 9th a distinct fall of pressure was noticed in the Bay extending from the Arakan to the Orissa coast when widespread moderate to heavy rain had fallen along the Arakan coast. The upper winds over Calcutta and Chittagong indicated the

presence of a cyclonic circulation in the north Bay at levels between 1 and 3 km.

Further fall of pressure in the Bay extending from the Arakan coast to the Circars coast continued till the morning of the 10th. This and observations of the Sandheads and of the following ships indicated that conditions became markedly unsettled in the north Bay :—

Date.	Hr. of obsn.	Name of ship or station.	POSITION.		WIND.		Sea.	Swell.	Remarks.
			Lat. N.	Long. E.	Dir.	For.			
10th June .	0630	Sandheads	o	o	NW	3	Slight.	Mod.	
10th June .	"	S. S. Akbar	19.2	87.3	SW	3	"	Mod. from SW.	Drizzle in last hour.
10th June .	0800	S. S. Akbar	18.5	87.1	W	3	"	"	Shower.
10th June .	"	S. S. Aronda	19.5	89.1	S	2	"	"	

A shift of the upper winds over Chittagong, Calcutta and Vizagapatam on the 10th morning also showed a cyclonic circulation in the north and central Bay.

By the morning of the 11th June a depression formed in the north Bay with central region within half a degree of Lat. 20°N. and Long. 89°E. The following ships' observations are significant in this connection :—

Date	Hr. of obsn.	Name of Ship.	POSITION.		WIND.		Sea.	Swell.	Remarks.
			Lat. N.	Long. E.	Dir.	For.			
11th June	0530	<i>S. S. Bahadur</i>	18.8	89.8	SW	2	Slight.	Mod. from SW.	Continuous heavy rain.
11th June	0830	<i>S. S. Isipingo</i>	18.3	91.3	SSW	6	Rough.	Heavy from SW.	Continuous rain.
11th June	0630	<i>S. S. Taptee</i>	20.2	89.3	SE	2	Slight.	Low from SW.	
11th June	0630	<i>S. S. Ellenga</i>	20.4	88.5	ENE	3	"	Mod. from SW.	
11th June	0800	"	20.4	88.3	NE	3	Mod.	Mod. from S.	Rainsqualls.
11th June	0630	<i>S. S. City of Glasgow</i>	20.2	87.8	NNE	2	Slight.	Heavy from S.	
11th June	0630	<i>S. S. Bankura</i>	19.0	86.7	NW	6	Rough.	Mod. from SW.	Continuous rain.

By the evening of the 11th pressure fell rapidly in the northwest Bay and the depression deepened without appreciable movement. The following ships in the southeastern

quadrant of the disturbance reported high winds and rough seas in the afternoon :—

Date.	Hr. of obsn.	Name of ship.	POSITION.		WIND.		Sea.	Swell.	Remarks.
			Lat. N.	Long. E.	Dir.	For.			
11th June	1530	<i>S. S. Bahadur</i>	17.6	90.5	SSW	6	Very rough	Heavy from SW.	Squally.
11th June	1730	"	17.4	90.6	S	7	"	"	"
11th June	"	<i>S. S. Santhia</i>	17.7	92.0	S	4	Rough	Heavy from S.	
11th June	1530	<i>S. S. Isipingo</i>	17.3	92.7	SSW	6	Confused	Heavy from SW.	

By the morning of the 12th the deep depression intensified into a storm of moderate intensity and moving northwards was centred at 8 hours near Lat. 20½°N., Long. 88°E. Continuing to move in a northwesterly direction it was centred at 19 hours about 80 miles to the southeast of Balasore.

Deepening further as it approached the coast the storm passed inland by the morning of the 13th and at 8 hours it lay near Balasore, when it recorded a pressure deficiency of 0.40",

The storm then weakened into a depression and for the next four days it moved first in a westerly direction and then in a northwesterly direction over Orissa and the Central Provinces and was centred over west Central India on the 17th morning and filled up thereafter.

Under the influence of this disturbance the monsoon established itself in the Central Provinces and extended into the east United Provinces, west Central India, Gujarat and north Hyderabad. Locally heavy rain occurred in Orissa between the 9th and 14th and in the Central Provinces

between the 14th and 16th and as a result serious breaches occurred in the Bengal Nagpur Railway lines passing through Orissa.

Some of the noteworthy falls of 6" and above recorded at 8 hours on different days during the period of the activity of the storm are given below :—

District.	Station.	13th.	14th.	15th.	16th.
Balasore . . .	Chandball . . .	6	..	..	..
Feudatory State . . .	Kanker . . .	..	..	7	..
Raipur . . .	Simga . . .	..	7	..	..
Raipur . . .	Deobhog . . .	..	7	..	..
Drug . . .	Adamabad . . .	..	..	7	..
Drug . . .	Bhilai . . .	..	..	6	..
Drug . . .	Ambagarh Chowki . . .	..	..	..	6
Raipur . . .	Dhamtari . . .	..	..	6	..
Raipur . . .	Gariaband . . .	..	..	7	..
Raipur . . .	Arang . . .	..	..	6	..
Raipur . . .	Rajim . . .	..	..	6	..
Raipur . . .	Mahasamund . . .	..	..	7	..

District.	Station.	13th.	14th.	15th.	16th.
Raipur . . .	Pindraon . . .	..	..	6	..
Raipur . . .	Maramsilli . . .	..	..	6	..
Raipur . . .	Gattasilli . . .	..	..	6	..
Raipur . . .	Chhati . . .	..	..	6	..
Raipur . . .	Kondapar . . .	..	..	6	..
Raipur . . .	Kendri . . .	..	..	6	..
Raipur . . .	Kumhari . . .	..	..	11	..

4. *Depression of 23rd to 28th June 1936 in the Bay of Bengal.*—After a temporary weakening, the monsoon strengthened in the south and central Bay between the 21st and 23rd June and on the morning of the latter date the pressure gradient in the south and central Bay was fairly steep while there was an area of uniform pressure in the northwest Bay. On the 24th morning the isobaric chart showed a trough of low pressure off the Orissa-Ganjam coast. The pilot balloon ascents at stations round the north and central Bay also showed a cyclonic circulation up to a height of at least 4 km. The above facts and the following observations indicated that conditions were favourable for the formation of a depression in that region :—

Date.	Hr. of Obsn.	Name of Ship or Station.	POSITION.		WIND.		Sea.	Swell.	REMARKS.
			Lat. N.	Long. E.	Dir.	For.			
24th June	0800	Sandheads . . .	..	..	SE	2	Smooth.	Low.	..
24th June	0800	Saugor Island . . .	..	..	ENE	3	Slight.	Low.	..
24th June	0800	Puri . . .	..	..	NNW	2	Smooth.	Low.	..
24th June	0630	S. S. Binfield . . .	14.4	88.6	SW	5	Mod.	Mod. from SW.	Rain.
24th June	0800	S. S. Lisbon Maru . . .	18.2	91.2	S	7	High.	..	..
24th June	0630	S. S. Aronda . . .	19.3	89.7	S	5	Mod.	Mod. from S.	..
24th June	0800	S. S. Jalaratna . . .	20.1	89.4	ESE	4	Mod.	Mod. from ESE.	..

By the morning of the 25th a shallow depression formed in the northwest angle of the Bay. A noteworthy feature of this depression was that during its process of formation the pressure round the north and central Bay was rising during the 24th and up to the morning of the 25th, and it was not until the evening of the 25th that the fall of pressure was noticed in Orissa-Ganjam and Bengal coasts. This indicated that the depression was of small extent and probably shallow. The shallow depression remained practically stationary in the northwest angle of the Bay centred between Chandbali and the Sandheads till the morning of the 27th, when it deepened. The depression crossed the coast near Balasore by the early hours of the 28th. Thereafter it became unimportant.

Under the influence of this depression the monsoon strengthened in Orissa and Lower Burma, Sambalpur recording the heavy rainfall of 9" in 24 hours ending at 8 hours on the 27th.

5. *Storm of 28th June to 4th July 1936 in the Arabian Sea.*—On the morning of the 26th June the pressure over east Gujarat, west Central India and the north Deccan began to fall rapidly and by the next morning it extended to the west Central Provinces and there was a concentrated pressure departure over this region of the order of 0.23". The pressure continued to fall during the next 24 hours and on the morning of the 28th a depression appeared over the west Central Provinces with a barometric deficiency of about 0.26". Moving northwestwards the depression was centred near Neemuch on the 29th morning. Thereafter it moved in a westerly direction and was centred near Deessa on the next morning. By the morning of the 1st July the depression deepened and was centred near Badin at 8 hours. It remained practically stationary for the rest of the day; but intensified further at the same time. By 17 hours it was probably a storm with its centre still near Badin. At this time the observatory at Dwarka and *S. S. Begum* which were within 200 miles to the south of the centre of the disturbance experienced winds from W and SW of forces 7 and 8 respectively with high or rough seas and heavy swell. The storm then slowly moved westwards and crossed the coast south of Karachi into the north Arabian Sea on the early morning of the 2nd and thereafter continuing to move in a westerly direction and, weakening at the same time, became unimportant over Oman by the 4th morning.

This disturbance was responsible for the strengthening of the monsoon generally in northwest India and its extension in Sind during the last week of June, and also for producing

vigorous monsoon in Sind and Rajputana on the first two days of July.

Heavy falls of rain occurred in north-west India, 10" of rain being recorded at Badin on the 1st July morning and 9" at Delhi on the 28th June morning, the latter constituting a record for Delhi for 58 years. Some of the other noteworthy falls of 5" and above are given below:—

Station.	June.			July.	
	28th.	29th.	30th.	1st.	2nd.
	"	"	"	"	"
Sehore (west Central India).	..	7	..	..	..
Narasingarh (west Central India).	5	..
Kotra (west Central India).	6
Bulsar (Gujarat)	8	..	..	..
Pardi (Gujarat)	7	..	..	..
Dharampur (Gujarat) .	..	9	..	..	..
Sachin (Gujarat) . .	6	..	..	..	..
Cambay (Gujarat) . .	8	..	..	..	..
Jati (Sind)	6	..
Shahbandar (Sind)	6	8
Tando Bago (Sind)	8	..
Ghosabari (Sind)	5	..
Shahabad (Rajputana)	5
Kishanganj (Rajputana)	6

6. *Depression of 1st to 5th July 1936 in the Bay of Bengal.*—On the morning of the 30th June a low pressure wave was noticed moving from the east across Burma. The fall of pressure continued till the next morning when an area of marked negative pressure departure extending from the Arakan coast to the Circars coast was noticed. These facts and the morning observations of Saugor Island and those of the ships given below suggested that conditions were becoming unsettled in the north and central Bay where a depression might form:—

Date.	Hr of obsn.	Station or ship.	Position.		Wind.		Sea.	Swell.
			Lat. N.	Long. E.	Dir.	For.		
1st July .	0800	Saugor Island . . .	..	..	ENE	3	Smooth .	Low.
1st July .	0630	<i>S. S. Jalapalaka</i> . . .	20.3	87.4	NW	4	..	..
1st July .	0630	<i>S. S. Ellenga</i> . . .	19.3	89.8	SE	2	Slight .	Mod. from S.

The afternoon upper winds from Calcutta, Sambalpur and Vizagapatam also indicated an anticlockwise circulation over the north and central Bay up to a height of 2 km.

By the morning of the 2nd July a depression formed in the north Bay with central region near Lat. 20°N. and Long. 88°E. with strong monsoon in the south and central Bay.

During the course of the day, the depression moved in a northerly direction weakening as it approached the coast, and passed inland between Saugor Island and Balasore on the early morning of the 3rd and was centred at 8 hrs. over southwest Bengal. Then it moved in a northwesterly direction to Chota Nagpur where it persisted up to the 5th and became unimportant thereafter. In association with this depression the monsoon strengthened in northeast India, the central parts of the country and in the north of the Peninsula.

7. *Land Depression of 7th to 11th July 1936.*—On the morning of the 7th July, a land depression appeared over the United Provinces near Lucknow. During the next 48 hours, it slightly deepened and was centred to the southeast of Lucknow on the 9th morning. Thereafter it moved very slowly northwestwards and filled up near Bareilly by the morning of the 12th. It caused strong monsoon with locally heavy falls in the United Provinces and the east and north Punjab and helped to maintain its activity in northeast India during the above period.

8. *Deep Depression of 20th to 29th July 1936 in the Bay of Bengal.*—The northerly or northeasterly currents along Orissa coast showed by the observations from Balasore to Calingapatam on the morning of the 20th July and the following ships' observations indicated a cyclonic circulation off the Orissa Circars coast with strong monsoon in the Central Bay.

Date.	Hr. of obsn.	Ship.	Position.		Wind.		Sea.	Swell.	Remarks.
			Lat. N.	Long. E.	Dir.	For.			
			•	•					
20th July	0630	S. S. Chyebassa	16.5	85.8	WSW	5	Rough . .	Mod. from SW.	
20th July	„	S. S. Chilka	17.8	88.8	S	2	Slight . .	Mod. from S. .	
20th July	0800	S. S. Jalajyoti	19.0	87.3	E	2	„ . .	„	
20th July	0630	S. S. Badarpar	13.8	84.2	WSW	7	Rough . .	Heavy from W.	Continuous rain.
20th July	„	S. S. Jaladurga	17.8	89.0	ESE	5	Mod. . .	Mod. from SW .	Rain.

By the morning of the 21st a depression formed with centre at 8 hrs. near Lat. 18½°N., Long. 87°E. The monsoon

was strong to the south of the depression. The following ships' observations are significant in this connection.

Date.	Hr. of obsn.	Ship.	Position.		Wind.		Sea.	Swell.	Remarks.
			Lat. N.	Long. E.	Dir.	For.			
			•	•					
21st July	0630	S. S. Rizwani	15.0	85.3	W	6	Rough . .	Heavy from W.	
21st July	0530	S. S. Jalajyoti	17.5	86.5	W	4	Mod. . .	Mod. from SW .	Rainsquall.
21st July	0630	S. S. Jalajyoti	16.9	86.2	WSW	6	Rough . .	Heavy from SW.	Squall.
21st July	0630	S. S. Chyebassa	14.5	85.2	WSW	6	High . .	Heavy from SE	Heavy squall in last 3 hours.
21st July	0800	S. S. Hamburg Maru	18.3	91.4	S	5	Rough . .	Mod. from S. .	

The depression remained practically stationary during the next 24 hours but deepened.

It then moved slowly northwestwards and was centred at 8 hours on the 23rd near Lat. 19°N., Long. 86°E. The deep depression continued to move slowly in a northwesterly direction, weakening at the same time, and crossed the coast between Puri and Gopalpur by the early morning of

the 24th. Travelling in a northwesterly direction over the east Central Provinces and the east United Provinces it lay near Lucknow on the morning of the 27th and filled up there after two days.

The depression was responsible for strong monsoon, with locally heavy falls, in the Orissa-Ganjam coast and in the central parts of the country and Hyderabad between the

21st and 24th and from Assam to the east Punjab between the 24th and 29th.

A few noteworthy falls of 5" and above are given below :—

District.	Station.	23rd.	24th.	25th.	26th.	27th.	28th.	29th.
		"	"	"	"	"	"	"
Rampur	Rampur . . . . .	..	5	..	..	..	..	..
Bastar	Jagdapur	7	..	..	..	..	..	..
Patna	Bikram . . . . .	..	..	..	..	6	..	..
Patna	Paliganj . . . . .	..	..	..	6	..	..	..
Muzaffarpur.	Katra . . . . .	..	..	..	..	6	..	..
Darbhanga	Rosra . . . . .	..	..	..	..	6	..	..
Darbhanga	Buchauli. . . . .	..	..	..	..	5	..	..
Monghyr	Jamalpur . . . . .	..	..	..	..	8	..	..
Budaun	Budaun . . . . .	..	..	..	..	6	..	..
Fatehpur	Fatehpur . . . . .	..	..	..	..	6	..	..
Moradabad	Moradabad . . . . .	..	..	..	..	..	5	..
Nainital	Nainital . . . . .	..	..	..	..	..	6	..
Nainital	Haldwani . . . . .	..	..	..	..	..	..	5
Gonda	Gonda . . . . .	..	..	..	..	..	5	..
Sitapur	Biswan . . . . .	..	..	..	..	..	..	10

9. Depression of 16th to 18th August 1936 in the Bay of Bengal.—On the morning of the 15th August the monsoon strengthened in the south and central Bay producing widespread heavy rainfall along the Arakan coast. During the course of the next 24 hours the weather became unsettled in the north Bay with strong monsoon in the south and central Bay.

By the morning of the 17th an area of concentrated negative pressure departure appeared off the Orissa-Ganjam coast and a depression formed centred at 8 hours near Lat. $18\frac{1}{2}^{\circ}$ N., Long. 87° E. The pilot balloon stations round the north Bay showed strong cyclonic circulation over the region up to a height of at least 3 km.

The depression moved northwards and on the morning of the 18th it was centred about 80 miles to the east of Puri and by the evening of the same day it crossed the Orissa coast near Chandbali. The depression filled up thereafter rapidly.

This disturbance activated the monsoon current and caused widespread and locally heavy rain in Orissa, the central parts of the country and the Peninsula.

The noteworthy amounts of rainfall were :—

District.	Station.	15th.	16th.	17th.	18th.	19th.
		"	"	"	"	"
Kalahandi	Bhawanipatna . . . . .	..	5	..	..	..
Drug	Kharra . . . . .	..	5	..	..	..
Raipur	Kumhari . . . . .	..	7	..	..	..
Saugor	Damoh . . . . .	..	..	..	..	5
Saugor	Hatta . . . . .	..	..	..	..	5
Chanda	Bichhla	5	..	..	..	..
Chanda	Kunghari . . . . .	..	5	..	..	..
Singbhum	Jagannathpur . . . . .	..	..	..	..	5

10. Deep Depression of 25th August to 1st September 1936 in the Bay of Bengal.—On the morning of the 24th August

the isobaric chart showed an extension of the seasonal trough of low pressure over the Gangetic plain up to the north Bay. During the course of next 24 hours weather became unsettled in the north Bay where a feeble anticlockwise circulation seemed to have been established.

By the morning of the 26th the unsettled conditions in the north Bay developed into a shallow depression centred at 8 hours near Lat. $19\frac{1}{2}^{\circ}\text{N.}$, Long. 89°E. The depression remained practically stationary and deepened during the next 24 hours. Thereafter it moved slowly in a westerly direction and at 8 hours of the 28th it was centred near Lat. $18\frac{1}{2}^{\circ}\text{N.}$, Long. 87°E.

By the 17 hours of the 28th the deep depression moved to about 150 miles east of Calingapatam and at 2 hours of the following morning it lay centred about 70 miles east of that port. The deep depression weakened as it moved towards the coast and was about to cross the coast near Calingapatam at 8 hours of the 29th.

By the morning of the 30th the depression lay over the east Central Provinces where it persisted till the following morning and thereafter while moving in a northerly direction it filled up over the Central Provinces by the 1st September.

In association with this depression, the monsoon was strong in lower Burma, Orissa, the north Madras coast, north Hyderabad and the central parts of the country.

Some noteworthy amounts of rainfall are given below :—

District.	Station.	26th.	27th.	28th.	29th.
		"	"	"	"
Hazaribagh . . .	Dhanwar . . .	..	5	..	..
Ranchi . . .	Palkot . . .	5	5	..	..
Drug . . .	Khapari . . .	..	..	..	5
" . . .	Hargaham . . .	..	..	..	5
Nandgaon . . .	Rajnandgaon . . .	..	..	..	6

11. *Depression of 5th to 9th September 1936 in the Bay of Bengal.*—The monsoon strengthened on the 3rd in Burma where widespread rain occurred on the 3rd and 4th with locally heavy falls in Arakan. On the 4th conditions became unsettled in the north Bay, which concentrated during the next 24 hours into a depression with central region near Lat. 19°N. , Long. 89°E. The cyclonic circulation in the north Bay at this time extended up to 3 km. and above, the Port Blair winds being of force 9 and 10 (B. S.) at 1 and 1.5 km.

The depression moved northwestwards and lay with centre about 100 miles southeast of Chandbali on the morning of the 6th. Without further intensification it crossed the Orissa coast between Puri and Chandbali by the same afternoon and lay over Orissa and the east Central Provinces on the following morning. The shallow depression moved northwestwards till the 10th morning when it merged into the seasonal trough of low pressure over northwest India.

Under the influence of this depression the monsoon was strong in Orissa, the Central Provinces, Gujarat and north-west India generally.

Some of the noteworthy amounts of rainfall are given below :—

District.	Station.	5th.	6th.	7 h.	8th.	9th.	10th.
		"	"	"	"	"	"
Gaya . . .	Sherghati . . .	..	..	..	..	..	11
Gaya . . .	Barachati . . .	..	..	..	..	..	17
Shahabad . . .	Chenari . . .	..	..	..	..	..	12
Darbhanga . . .	Samastipur . . .	..	..	..	..	..	5
Santhal Parganas .	Sarawan . . .	..	..	..	..	..	5
Hazaribagh . . .	Hunterganj . . .	..	..	..	..	..	9
Bhopal . . .	Nasrulaganj . . .	..	..	..	6	..	..
Malwa Agency . . .	Rutlam . . .	..	..	5	..	..	..
Drug . . .	Bemetara . . .	..	..	5	..	..	..
Raipur . . .	Dhamtari . . .	..	..	5	..	..	..
Raipur . . .	Siuga . . .	..	5	..	..	..	..
Raipur . . .	Gariakund . . .	..	5	..	..	..	..
Raipur . . .	Rudri . . .	..	..	6	..	..	..
Raipur . . .	Maramsilli . . .	..	..	7	..	..	..
Raipur . . .	Chhati . . .	..	..	6	..	..	..
Raipur . . .	Kumhari . . .	..	..	5	..	..	..
Mandla . . .	Mandla . . .	..	..	..	..	..	6
Mandla . . .	Bichhia . . .	..	..	..	..	..	6
Chanda . . .	Asola . . .	..	..	..	5	..	..
Balaghat . . .	Katangshiri . . .	..	..	..	..	..	5
Hoshangabad . . .	Hoshangabad . . .	..	5	..	..	..	..
Nimar . . .	Mandhata . . .	8	..	..	..	..	..
Akola . . .	Akola . . .	..	..	..	5	..	..
Akala . . .	Balpur . . .	..	..	..	5	..	..

12. *Severe Storm of 29th September to 7th October 1936 in the Bay of Bengal.*—On the morning of the 27th September the isobaric chart showed a trough of low pressure extending from the Andaman Sea to the Central Bay.

Ships' observations indicated that an anticlockwise circulation was in the process of formation in this region, where conditions were unsettled. The following ships' observations are of interest :—

Date.	Hr. of Obsn.	Name of Ship.	POSITION.		WIND.		Sea.	Swell.	REMARKS.
			Lat. N.	Long. E.	Dir.	For.			
27th September.	0600	<i>S. S. Erinpura</i> . .	14.2	86.7	ENE	1	Smooth	Mod. from S.	
27th September.	0800	<i>S. S. Ethiopia</i> . .	15.0	90.5	E/S	3	Slight	Mod. from SW.	
27th September.	0800	<i>S. S. Masimpur</i> . .	14.5	88.1	Variable	..	..	Low from S.	
27th September.	0800	<i>S. S. Subadar</i> . .	13.0	85.3	WSW	3	Slight	Mod. from SSW.	Rain.
27th September.	0800	<i>S. S. Haresfield</i> . .	10.3	87.3	SW/W	5-6	Rough	Heavy from SW.	
27th September.	0800	<i>S. S. Hongsiang</i> . .	12.1	96.9	W/W	5	Rough	Mod.	Overcast, Rain-squall.

During the course of the next 24 hours the unsettled conditions became more marked and the trough of low pressure moved a little northwestwards and on the morning of the 28th extended from the north Andaman Sea to the Orissa-Circars coast. Ships' observations indicated that there

existed two regions of cyclonic circulation within this trough, centred in the west Central Bay and in the east Central Bay near Table Island respectively. The following ships' observations are significant in this connection :—

Date.	Hr. of Obsn.	Name of Ship.	POSITION.		WIND.		Sea.	Swell.	REMARKS.
			Lat. N.	Long. E.	Dir.	For.			
28th September.	0800	<i>S. S. Schonfils</i> . .	16.9	86.8	NE	4	..	..
28th September.	0630	<i>S. S. Begum</i> . .	12.3	84.4	WNW	6	Rough	Mod. from S.	Rain.
28th September.	0630	<i>S. S. Subedar</i> . .	13.6	89.3	SSW	2	Slight	Mod. from SW.	
28th September.	0630	<i>S. S. Jala Durga</i> . .	17.7	88.6	E	4	Mod.	Confused from W.	
28th September.	0930	<i>S. S. Sirsa</i> . .	14.7	93.8	SW	6	Rough	Heavy from SW.	Continuous rain.
28th September.	1030	<i>S. S. Jalapadma</i> . .	14.5	94.5	SW	6	Very rough	Heavy from SW.	Continuous rain.
28th September.	0800	<i>S. S. Masimpur</i> . .	15.5	91.8	ENE	3	Mod.	Low from SSW.	
28th September.	0930	<i>S. S. Masimpur</i> . .	15.5	92.2	ENE	3	Mod.	Mod. from S.	

During the next 24 hours the two cyclonic circulations developed into depressions. These were centred on the morning of the 29th near Lat. 15°N., Long. 86°E. and over the

mouth of the Irrawady, close to the coast. The observations of Rangoon, Bassein, Diamond Island and of *S. S. Ekma* are interesting in connection with the Irrawady depression.

Date.	Hr. of Obsn.	Name of Ship or Station.	POSITION.		WIND.		Sea.	Swell.	REMARKS.
			Lat. N.	Long. E.	Dir.	For.			
29th September.	0630	<i>S. S. Ekma</i> . . .	15.6	95.8	SW	5	Mod.	Heavy from SW.	Rain-squall.
29th September.	0800	Rangoon . . .	..	..	SSW	2	--	..	Drizzling.
29th September.	0800	Bassein . . .	..	..	ENE	3	--	..	Drizzle in last hour.
29th September.	0800	Diamond Island . .	..	..	NNW	2	Slight	Mod.	Raining.

This depression was of small extent. Without further intensification it moved northwards and by the evening of the 29th was centred near Tharrawady. Thereafter it weakened and travelling northwestwards overland became less marked at the surface by the next morning. The cyclonic whirl, however, persisted in the upper layer.

The other depression moved northwards and was centred on the morning of the 30th near Lat. 16°N., Long. 86°E. The following ships' observations on the 29th and 30th are of interest in this connection.

Date.	Hr. of Obsn.	Name of Ship.	POSITION.		WIND.		Sea.	Swell.	REMARKS.
			Lat. N.	Long. E.	Dir.	For.			
29th September.	0800	<i>S. S. Khosrou</i> . .	15.6	85.9	ENE	4	Mod.	Confused	
29th September.	0930	<i>S. S. Begum</i> . .	15.9	86.5	S	3	Slight	Sl. from S.	
29th September.	0830	<i>S. S. Clan Graham</i> .	14.6	86.2	SW	4	--	Mod.	Rain-squall.
29th September.	0630	<i>S. S. Jaladuta</i> . .	14.5	85.2	W	4	Mod.	Mod. from S	Continuous rain.
30th September.	0800	<i>S. S. City of New Castle</i> .	14.3	85.5	W	6	Rough	Heavy from W.	Rain-squall.
30th September.	0930	<i>S. S. Begum</i> . .	18.7	87.2	ENE	6	Mod.	Mod. from SW.	Rain with squall.
30th September.	0630	<i>S. S. Khosrou</i> . .	13.9	84.9	WSW	4	Mod.	Heavy from SW.	Squally.

Thereafter being aided by the upper air circulation over the north Bay initiated by the first depression it began to move in a northeasterly direction and was centred at 8 hrs.

on the 1st October near Lat. $17\frac{1}{2}^{\circ}$ N., Long. 88° E. The following ships' observations are interesting in this connection :—

Date.	Hr. of obsn.	Name of ship.	Position.		Wind.		Sea.	Swell.	Remarks.
			Lat. N.	Long. E.	Dir.	For.			
1st Octr.	0630	<i>S. S. Suisang</i>	20.2	88.7	NE	5	Mod.	Mod. from SW.	
1st Octr.	0630	<i>S. S. Hatipara</i>	16.2	83.4	NW	5	Slight	Mod. from SW.	Drizzling.
1st Octr.	1130	<i>S. S. Clan Macilwraith</i>	15.0	87.3	SW	7	High	Mod. from SW.	Squally.
1st Octr.	0930	<i>S. S. Singu</i>	18.8	92.5	SE	5	Mod.	Mod. from SW.	

By the morning of the 2nd the depression deepened further and was centred at 8 hrs, near Lat. $18\frac{1}{2}^{\circ}$ N., Long. 89° E. The following three ships though far away

from the centre were gripped in the circulation and this was helpful in locating the centre :—

Date.	Hr. of obsn.	Name of ship.	Position.		Wind.		Sea.	Swell.	Remarks.
			Lat. N.	Long. E.	Dir.	For.			
2nd Octr.	0930	<i>S. S. Barbarigo</i>	19.5	87.6	NE	5	..	..	Squally.
2nd Octr.	0530	<i>S. S. Rahmani</i>	16.4	86.2	WNW	6	Rough	Heavy from NW.	Squally.
2nd Octr.	0630	<i>S. S. Pasha</i>	18.3	91.2	S	4	Rough	Heavy from SW.	

During the course of the day the deep depression recurved and while moving in a northwesterly direction intensified into a storm by the evening. It was centred at 8 hrs. of the 3rd within half a degree of Lat. $19\frac{1}{2}^{\circ}$ N.,

Long. $88\frac{1}{2}^{\circ}$ E. The logs and reports received from *S. S. Jalarashmi*, *Jalaputra*, *Chinkoa* and *Kutsang* which were not far from the centre of the storm are very interesting and are given below :—

S. S. Jalarashmi.

Date.	Hour.	Position.		Bar.	Wind.		Sea.	Swell.	Remarks.
		Lat. N.	Long. E.		Dir.	For.			
3rd Oct.	0400	20 37	87 49	29.38	ENE	4	Moderate	Mod. average length.	Continuous rain, few heavy showers and squalls.
	0800	20 15	87 19	29.38	NNE	5	Rough	Mod. Long.	Heavy rain showers, Vis. mod., Rising sea.
	0900	20 7	87 9	29.36	NNE	7	Rough	Mod. Long.	Rain squalls, Vis. mod.

S. S. Jalarashmi—contd.

Date.	Hour.	Position.		Bar.	Wind.		Sea.	Swell.	Remarks.
		Lat. N.	Long. E.		Dir.	For.			
3rd Oct.— contd.		° '	° '	"					
	1000	19 59	87 00	29 32	NNE	7	Rough	Heavy short	Rain, Vis. poor.
	1100	19 50	86 50	29 27	NNE	7	Very rough	Heavy average length.	
	1200	19 42	86 40	29 27	NNE	7-8	Very rough	Heavy average length.	
	1300	19 36	86 30	29 21	NNE	7-8	Very rough	Heavy long	
	1400	19 30	86 23	29 16	N	8	High	Heavy average length.	Squalls of storm force, Vis. poor.
	1500	19 25	86 16	29 12	NNW	9	High	Heavy average length.	
	1600	19 15	86 14	29 12	NW	10	High	..	Vis. poor.
	1700	19 08	86 11	29 12	NW	10	High	..	Squalls of hurricane force, heavy rain showers.
	1800	18 58	86 08	29 14	WNW	10	..	..	Vis. very poor.
	1900	18 49	86 06	29 13	WNW	10	..	..	Hurricane squalls.
	2000	18 40	86 03	29 15	W	10	..	..
	2100	18 35	86 14	29 23	WSW	10	..	..	Bar. rising.
	2200	18 31	86 24	29 33	WSW	10	..	..
	2300	18 26	86 36	29 35	WSW	8-9	..	..	Weather moderating generally
4th Oct.	0000	18 20	86 49	29 39	WSW	7-8	..	..
	0400	18 8	86 40	29 46	SW	6	Rough	Heavy short	Break in the clouds dim moonlight came through.
	0800	17 50	86 27	29 60	SSW	6	Rough	Mod. long.	
	1200	17 27	86 12	29 64	SSW	5-6	Rough	Mod. long.	
	2000	16 40	85 50	29 70	SSW	5	Rough	Mod. long.	
	0000	16 20	85 40	29 72	SSW	4-5	Rough	Mod. long.	

S. S. Jalaputra.

Date.	Hour.	POSITION.		Bar.	WIND.		Sea.	Swell.	REMARKS.
		Lat. N.	Long. E.		Dir.	For.			
3rd Oct.		° ' "	° ' "	"					
	0800	20 15	87 40	29.41	ENE	4.5	Rough	Moderate average length.	
	0900	..	..	29.36	NE/E	6.7	Rough	Heavy short.	
	1000	..	..	29.31	NE/E	7	Rough	Heavy average length.	
	1100	..	..	29.21	NE/E	7	Very rough	Heavy average length.	
	1200	19 47	87 11	29.23	NE/E	7	Very rough	Heavy average length.	
	1300	..	..	29.19	NE	7.8	Very rough	Heavy average length.	
	1400	..	..	29.17	NE/N	7.8	Very rough	Heavy average length.	
	1500	..	..	29.15	NNE	8	High	Heavy average length.	
	1600	19 38	86 52	29.09	NNW	9	High	Heavy average length.	
	1700	..	..	29.11	NNW	9	Very high	Heavy average length.	
	1800	..	..	29.14	NNW	9	Very high	Heavy average length.	
	1900	..	..	29.17	NNW	9	Very high	Heavy average length.	
	2000	19 30	86 35	29.19	NW	9	Very high	Heavy average length.	
	2100	19 23	86 40	29.23	WNW	9	Very high	Heavy average length.	
	2200	19 17	86 45	29.29	WNW	9.10	Very high	Heavy average length.	
	2300	19 12	86 47	29.33	W/N	9	Very high	Heavy average length.	
	0000	19 04	86 50	29.39	W	7.8	Very high	Heavy average length.	
4th Oct.	0100	..	..	29.39	WSW	6	High	Heavy long.	
	0200	..	..	29.43	SW	6	Very rough	Heavy average length.	
	0300	..	..	29.44	SW	6	Very rough	Heavy average length.	
	0400	18 48	87 05	29.46	SW/S	6	Very rough	Heavy average length.	
	0500	..	..	29.47	SW/S	6	Very rough	Heavy average length.	
	0600	..	..	29.49	SW/S	6	Rough	Heavy average length.	

S. S. Chinkoa.

Date.	Hour.	POSITION.		Bar.	WIND.		Sea.	Swell.	REMARKS.
		Lat. N.	Long. E.		Dir.	For.			
3rd Oct.	1200	19 28	85 58	29.50	W/N	7.8	Rough	Heavy	
	1400	19 26	86 02	29.40	W	8	High	Heavy	
	1600	19 23	86 06	29.40	W	8	High	Heavy	
	1700	19 22	86 08	29.38	W	9	..	..	Wind increasing in force.
	1800	19 20	86 10	29.38	W	10	..	..
	2000	19 18	86 14	29.48	W	10	High	Heavy short	Whole gale, continuous heavy rain.
	2200	19 12	86 19	29.54	W/N	9	..	..
	0000	19 10	86 24	29.62	W/S	6	High	Heavy short	

S. S. Kutsang.

Date.	Hour.	POSITION.		WIND.		Sea.	Swell.	REMARKS.
		Lat. N.	Long. E.	Dir.	For.			
3rd Oct.	0830	20.2	89.0	E	6	Very rough	Moderate from SW	Rainsquall.
	1030	20.2	89.2	ESE	6	Very rough	Moderate from SE	Squally.
	1230	20.0	89.4	SE	7	High	Heavy from SE	Shower with squall.
	1700	19.6	89.8	S	8	Very high	Heavy from SW	Squally.
	1900	19.3	90.0	SSW	8	High	Heavy from SW	Squally.

From the above it will be seen that the storm intensified further into a severe one during the course of the day and was centred within half a degree of Lat. $19\frac{1}{2}^{\circ}$ N. and long. $87\frac{1}{2}^{\circ}$ E. at 17 hours of the 3rd. The pressure deficiency at the centre of the disturbance at this time was probably of the order of 0.80". Continuing to move in a north-westerly direction the severe storm lay near Orissa coast between Puri and Chandbali at 2 hours on the 4th. By 8 hours of the same day it passed inland and lay over Orissa as a deep depression. Travelling thereafter as a deep depression through Chota Nagpur it recurved north-eastwards on the 5th, weakening at the same time, and became unimportant over east Bengal two days later.

This storm was responsible for fairly widespread and locally heavy rain in Burma and the head of the Bay of Bengal and in northeast India generally. Rainfall was particularly heavy and concentrated over Orissa on the 14th and extensive damage is reported to have occurred over a wide area in the Province, nearly 300 thatched houses collapsing in Cuttack alone. Railway services as well as telegraphic and telephonic communications in Orissa, Chota Nagpur and Bihar were severely dislocated. Some of the

heavy falls of rain recorded at 8 hours during the period of activity of the storm are given below :—

District.	Station.	4th.	5th.	6th.	7th.
		"	"	"	"
Sonepur . . .	Sonepur . . .	..	5	..	..
Rairkhol . . .	Rampur . . .	..	8	..	..
Bamra . . .	Deoghar . . .	..	10	..	..
Gangpur . . .	Gangpur . . .	..	7	..	..
Bonari . . .	Baraigarh . . .	..	8	..	..
Dhankuul . . .	Dhenkanal . . .	..	7	..	..
Dhankuul . . .	Bysinga . . .	..	9	..	..
Pal Lahara . . .	Pal-Lahara . . .	12	..	..	..
Athmallik . . .	Handapa . . .	..	7	..	..

District.	Station.	4th.	5th.	6th.	7th.
		"	"	"	"
Band . . .	Band . . .	..	7	..	..
Athgarh . . .	Athgarh . . .	6	..	..	..
Tigiria . . .	Tigiria . . .	..	5	..	..
Jashpur . . .	Jashpur . . .	..	5	..	..
Gaya . . .	Nabinagar . . .	..	5	..	..
Gaya . . .	Aurangabad . . .	..	..	8	..
Monghyr . . .	Monghyr . . .	..	..	5	..
Monghyr . . .	Jamul . . .	..	..	7	..
Monghyr . . .	Gogri . . .	..	..	6	..
Monghyr . . .	Jamalpur . . .	..	..	6	..
Monghyr . . .	Bakhtiarpur . . .	..	..	5	..
Monghyr . . .	Gidhaur . . .	..	..	6	..
Bhagalpur . . .	Bhagalpur . . .	..	6	..	..
Bhagalpur . . .	Sonola . . .	..	..	5	..
Bhagalpur . . .	Sultanganj . . .	..	..	7	..
Purnea . . .	Araria . . .	..	..	5	..
Purnea . . .	Purnea . . .	..	..	..	6
Purnea . . .	Gondwara . . .	..	..	..	5
Purnea . . .	Barsoe . . .	..	..	..	6
Purnea . . .	Monihari . . .	..	8	..	..
Santal Parganas . . .	Sonath . . .	..	5	..	..
Santal Parganas . . .	Sarawan . . .	..	..	5	..
Santal Parganas . . .	Sahebganj . . .	..	..	11	..

District.	Station.	4th.	5th.	6th.	7th.
		"	"	"	"
Santal Parganas . . .	Pairo . . .	..	..	5	..
Hazaribagh . . .	Dhawai . . .	..	..	5	..
Manbhum . . .	Tundi . . .	..	6	..	..
Manbhum . . .	Katras . . .	..	..	5	..
Rangpur . . .	Rangpur . . .	..	..	..	9
Rangpur . . .	Kurigaon . . .	..	..	..	6
Rangpur . . .	Bagdogra . . .	..	..	7	..
Rangpur . . .	Ulepore . . .	..	..	..	6
Rangpur . . .	Saidpur . . .	..	..	7	..
Ranchi . . .	Chainpur . . .	..	..	10	..
Dinajpur . . .	Itahar . . .	..	..	5	..
Dinajpur . . .	Raiganj . . .	..	..	..	5
Dinajpur . . .	Thakurgaon . . .	..	..	..	6
Dinajpur . . .	Setabganj . . .	..	..	..	6
Mymensingh . . .	Mymensingh . . .	..	..	5	..
Mymensingh . . .	Durgapur . . .	..	..	7	..
Goalpara . . .	Mankachar . . .	..	5	..	..
Khasi and Jainti Hills	Mawphlang . . .	..	..	..	6
Khasi and Jainti Hills	Cherrapunji W. M. . .	6	..	11	11
Khasi and Jainti Hills	Cherrapunji . . .	5	..	11	11
Khasi and Jainti Hills	Jowai . . .	..	..	6	..
Cachar . . .	Haflong . . .	..	..	6	..
Cachar . . .	Harangagao . . .	..	..	5	..

13. *Storm of 25th to 31st October 1936 in the Bay of Bengal.*—The northeast monsoon was established in the Bay by the third week of October. On the morning of the 24th ships in the Bay between latitudes 9° N. and 14° N. and west of longitude 91° E., reported N-ly or NE-ly winds with generally overcast skies and rainsqualls. On the

morning of the following day a cyclonic circulation was being established in the south Bay where a depression was forming with central region near Lat. 10° N., Long. 87½° E. The following ships' observations are significant in this connection:—

Date.	Hr. of Obsn.	Ships.	Position.		Wind.		Sea.	Swell.	Remarks.
			Lat. N.	Long. E.	Dir.	For.			
25th October.	0630	<i>S. S. Masimpur</i> . . .	9.5	86.4	NW	4	Mod.	Mod.	....
	0630	<i>S. S. Jalatarang</i> . . .	12.7	90.6	SE	4	Sl. .	Mod. from S.	....
	0700	<i>S. S. Erinpura</i> . . .	14.2	86.4	ESE	5	Mod.	Mod. from E.	....
	0630	<i>S. S. Khosru</i> . . .	13.0	84.3	NE	3	Sl. .	Mod. from NE.	....
	0800	<i>S. S. Howra</i> . . .	10.9	83.8	N/E	3	Mod.	Mod. from ENE.	Passing shower.
	0800	<i>S. S. Favorit</i> . . .	13.2	86.5	NE	3	Mod.	..	....

During the course of the day a depression formed and moving in a westerly direction it lay on the morning of the 26th, centred near Lat. $10\frac{1}{2}^{\circ}$ N., Long. 85° E. The marked strengthening of winds at Madras and Vizagapatam up to

2 km. is significant in this connection. The following observations from ships on the morning of the 26th round the centre are of interest :—

Date.	Hour of observation.	Steamer.	Position.		Wind.		Sea.	Swell.	Remarks.
			Lat. N.	Long. E.	Dir.	For.			
26th October.	0630	<i>S. S. Howra</i> . . .	13.3	84.8	ENE	6	Rough .	Heavy from NE.	....
26th October.	0800	<i>S. S. City of Glasgow</i> .	10.1	81.3	N	5	Mod. .	Mod. from N.	Rain squall.
26th October.	0630	<i>S. S. Risaldar</i> . . .	8.3	82.8	W	3	Slight. .	Mod. from E.	....
26th October.	0630	<i>S. S. Aungban</i> . . .	9.3	86.2	SSW	6	Rough .	Heavy from SW.	....
26th October.	1130	<i>S. S. Jalatarang</i> . . .	10.5	87.1	SSW	4	Rough .	Mod. from S.	Rain.
26th October.	0630	<i>S. S. Rohna</i> . . .	8.5	87.6	S	5	Mod. .	Confused.	Rain,

Pressure fell rapidly during the course of the day along the Coromandel coast and the depression, which developed into a cyclonic storm by the evening, moved in a northwesterly direction and lay centred about 150 miles eastsoutheast of Madras on the morning of the 27th. The storm then began moving in a northnorthwesterly direction and during the course of the day increased in intensity the pressure deficiency at the centre being of the order of 0.50". By 11 hrs. on the 28th the storm crossed the Circars coast near Masulipatam and began weakening rapidly. It travelled thereafter as a deep depression across Hyderabad to the Central Provinces, where it filled up by the 31st.

The storm caused widespread and heavy rain along the east Madras and Orissa coasts between the 26th and 28th and in the Central Provinces on the 29th and 30th, locally heavy rain also falling in Hyderabad, Chota Nagpur, Bihar, the east United Provinces and east Central India. It was responsible for severe damage in the coastal districts of the Madras Presidency which lay along and near its track. According to newspaper reports the damage extended from the north of Nellore district to the Godavari district, the worst sufferer being the Taluq of Bapatla in the Guntur district. In many villages almost every thatched shed collapsed rendering thousands of people homeless. Even well built structures were heavily damaged, roofs being blown away in many cases. The Tobacco Factory at Chirala is reported to have sustained damage of about two lakhs of rupees. Many places were inundated by the heavy rain. At Masulipatam thousands of bags of groundnuts stocked in the godowns were damaged by the running in of sea water.

Fruit gardens and standing as well as harvested crops were destroyed and hay stacks and fodder heaps were scattered by the wind. Heavy loss of live stock is also reported. Some human lives were also lost, mainly owing to collapse of walls. Almost all avenue trees were uprooted and obstructed road traffic. Telegraph and telephone lines were blown down and several breaches occurred on railway lines in the region affected.

A few noteworthy rainfalls are given in the following table :—

District.	Station.	27th.	28th.	29th.	30th.	31st.
		"	"	"	"	"
Chanda .	Chanda .	..	..	..	6	..
Chanda .	Chimar .	..	..	..	6	..
Chanda .	Nalesar .	..	..	..	7	..
Chanda .	Chorajheri .	..	..	..	7	..
Balaghat .	Borikhera .	..	..	..	5	..
Chhindwara.	Bori . .	..	..	..	5	7

District.	Station.	27th.	28th.	29th.	30th.	31st.	District.	Station.	27th.	28th.	29th.	30th.	31st.
Nagpur.	Nagpur .	..	..	..	6	..	East Goda- vari.	Rajole .	..	8	..	..	..
Nagpur .	Umrer .	..	..	..	7	..	East Goda- vari.	Prattipadu .	..	..	12	..	..
Nagpur .	Ramtek .	..	..	..	5	..	East Goda- vari.	Peddapuram .	..	..	9	..	..
Nagpur .	Tharsa .	..	..	..	5	..	Vizaga- patam.	Srungavara- pukota.	..	..	5	..	..
Nagpur .	Parseone .	..	..	..	6	..	Kistna .	Masulipatam .	..	5	..	..	..
Yeotmal .	Penderkowra .	..	..	..	5	..	Kistna .	Jaggayyapeta .	..	..	7	..	..
Ganjam .	Gopalpur .	..	..	6	..	..	Kistna .	Nandigama .	..	..	10	..	..
East Goda- vari .	Bikkavali .	5	6	..	..	..	Guntur .	Guntur .	..	..	7	..	..
East Goda- vari .	Pithapuram .	..	..	5	..	..	Guntur .	Repalle .	..	7	..	..	..
East Goda- vari .	Cocanada .	..	5	11	..	..	Guntur .	Santaravur .	..	..	5	..	..
East Goda- vari.	Coringa .	..	..	9	..	..	West Goda- vari.	Sattenapalle.	..	..	5	..	..
							West Goda- vari.	Tanuku .	..	5	..	..	..

14. *Deep Depression of 1st to 15th November 1936 in the Arabian Sea.*—On the morning of the 1st November weather became suspicious in the southwest Bay and by evening of the same day a low pressure wave was seen travelling westwards, across the Coromandal and Ceylon coasts. At 8 hrs. of the 2nd the low pressure wave was over the extreme south of the peninsula and Gulf of Mannar and was moving westwards into the southeast Arabian Sea. By the morning of the 3rd the low pressure wave concentrated into a shallow depression in southeast Arabian Sea off Malabar with central region near Lat. $9\frac{1}{2}^{\circ}\text{N}$., Long. 75°E ., as is evident from the following observations :—

Station or Steamer.	Wind.		Bar.
	Dir.	For	
Aminidevi	NE	2	29.79
Minicoy	N	1	29.80
Trivandrum	ESE	2	29.80
Pamban	E	2	29.80
Madura	ENE	3	29.80
Cochin	SE	2	29.79
Calicut	Calm	...	29.78
Mangalore	NE	1	29.79
S. S. Rizwani (Lat. $9\frac{1}{2}^{\circ}\text{N}$., Long. 76°E .)	SE	2	29.73
S. S. Jaladuta (Lat. $12\frac{1}{2}^{\circ}\text{N}$., Long. $74\frac{1}{2}^{\circ}\text{E}$.)	NE	1	29.78

Upper winds at Trivandrum were between S and W (force 2—4 B. S.) up to 6 km. and those at Mangalore were from E (force 5—7 B.S.) up to 3 km. (limit of ascent).

While moving slowly westwards for the next 48 hours, the shallow depression intensified further and was centred about 50 miles to the northeast of Minicoy at 8 hrs. on the 5th morning. At this time Minicoy and Aminidevi were experiencing rough seas. The depression then moved in a northwesterly direction and was centred within a degree of Lat. 10°N ., Long. $72\frac{1}{2}^{\circ}\text{E}$., at 8 hrs. on the 6th. During the next 24 hours the depression was practically stationary but pressures began to fall on the morning of the 7th along the Konkan-Kathiawar coast north of Mangalore up to Veraval and in the Arabian Sea showing that it was likely to move in a northerly direction. Aminidevi and Minicoy were experiencing rough seas and ships and stations along and off the Malabar coast reported showers and occasional rain-squalls. During the course of the day it moved northnorth-westwards and at 8 hrs. of the 8th was centred near Lat. 13°N ., Long. $71\frac{1}{2}^{\circ}\text{E}$. At this time the upper winds at Mangalore were between S and SE of force 5 to 8 B.S. at all levels and the winds at Bombay, Poona and Bellary were also between E and SE with force 5 to 8 suggesting that the depression had intensified further and was moving northwards.

The deep depression thereafter moving in a more northerly direction was centred near Lat. 18°N ., Long. 71°E . at 17 hrs. on the 11th. S. S. *Aungban* which left Bombay Harbour at 17 hrs. 16 mins. On the 11th was experiencing at Lat. $18^{\circ}37'\text{N}$., Long. $72^{\circ}35'\text{E}$. at 20 hrs. very rough seas, heavy swell and SSE-ly winds of force 7. At 8 hrs. on the 12th the deep depression was centered near Lat. 19°N ., Long. $70\frac{1}{2}^{\circ}\text{E}$. At this time Bombay upper wind was of force 9 B.S. from the S at 1 km. (limit of ascent). Thereafter the

depression took a northwesterly course and on the 13th morning it was about 50 miles southwest of Veraval and rough to very rough seas and rainsqualls were being experi-

enced along the Kathiawar coast. The following log of *S. S. Varela* which was bound from Karachi to Bombay is interesting :—

Date.	Hr. of obsn.	Position.		Bar.	Wind.		Sea.	Swell.	Remarks.
		Lat. N.	Long E.		Dir.	For.			
13th Novr.	0900	22 20	68 31	29.80	NNE	6	Rough.	Low.	
	1000	22 10	68 37	29.81	ENE	6-7	Rough.	Low,	From 1015 heavy rain, squalls at frequent intervals, wind about force 7-8 during squalls.
	1100	22 00	68 47	29.80	E/N	7	Rough.	Mod. short.	
	1200	21 51	69 00	29.80	E/N	6	Rough.	Mod. long.	
	1300	21 42	69 11	29.75	E/N	6	Rough.	Mod.	Between 2.30 P.M. 4.00 P.M. passed apparent centre of cyclone and eastward (vessel to the eastward). Distances from centre not known but would approximate it at 20 or 30 miles away.
	1400	21 33	69 23	29.70	ESE	6-7	Rough.	Mod.	
	1500	21 28	69 28	29.68	SE	6-7	Rough.	Mod.	
	1600	21 19	69 40	29.68	SE/S	6	Rough.	Mod.	
	1700	21 11	69 52	29.70	S/E	5-6	Rough.	Mod.	
	1800	21 02	70 04	29.73	S	7	Mod.	Mod.	
	1900	20 55	70 09	29.77	S/E	5	Mod.	Low long.	

It will be seen from the above log that the lowest pressure of 29.68" recorded by this ship was between 15 and 16 hrs. on the 13th when it passed near the centre of the depression which was near Lat. $21\frac{1}{2}^{\circ}$ N., Long. 69° E. and the pressure deficiency was of the order of 0.20".

The depression was centred near Dwarka at 17 hours of the 14th when *S. S. Varsova* bound from Bombay to Karachi was within about 50 miles of the centre and experienced NE-ly winds of force 7 B.S., continuous rain, rough seas and heavy swell. Thereafter the depression weakened and moving in a northeasterly direction filled up over Cutch on the 15th.

Under the influence of this disturbance widespread and locally heavy rain occurred in south Madras on the 1st and

2nd, over the whole of the Peninsula between the 7th and the 10th and in Central India and the west Central Provinces between the 9th and 13th. Rainfall was also fairly widespread in the Konkan and the Deccan on some days after the 10th and occurred locally in Gujarat, Rajputana and Sind between the 8th and 15th. Of the locally heavy rainfalls caused by this depression a special mention may be made of a fall of 9" at Cuddalore and 5" at Negapatam on the 1st and a fall of 6" each at Trichinopoly and Edalabad (east Khandesh) on the 2nd and 10th respectively.

15. *Depression of 4th to 7th November 1936 in the Bay of Bengal.*—Weather appeared unsettled in the south Bay on the morning of the 3rd November from the observations of the following two ships :—

Date.	Hr. of obsn.	Name of ship.	Position.		Wind.		Sea.	Swell	Remarks.
			Lat. N.	Long. E.	Dir.	For.			
3rd November.	0800	<i>S. S. Behar</i>	5.9	86.8	W	3	Mod.	...	Heavy rains-quall.
3rd November.	0800	<i>S. S. Jalapadma</i>	8.8	85.6	NNE	1	Sm.	...	

On the morning of the 4th the unsettled conditions became well-marked where the following ships' observations indicated that an anticlockwise circulation was being estab-

lished, and a depression was forming with central region near Lat. 9°N., Long. 88°E.

Date.	Hr. of obsn.	Name of Ship.	POSITION.		WIND.		Sea.
			Lat. N.	Long. E.	Dir.	For.	
4th Novem-ber.	0800	<i>S. S. Taijin Maru</i>	5.7	86.3	WSW	3	Sl.
4th Novem-ber.	0800	<i>S. S. City of Windsor</i>	8.5	91.9	SSE	3	Mod.
4th Novem-ber.	0800	<i>S. S. Benalder</i>	12.3	84.5	NE	4	Sl.
4th Novem-ber.	0800	<i>S. S. Homefield</i>	13.2	90.0	ENE	5	Mod.
4th Novem-ber.	0636	<i>S. S. Jalaputra</i>	10.0	83.6	N	2	Sm.

During the course of the day the depression formed and moving in a northwesterly direction lay centred at 8 hours on the 5th near Lat. 11½°N., Long. 86°E. Thereafter moving in a westnorthwesterly direction it began to affect the weather over the Coromandel coast where locally heavy rain commenced. On the morning of the 6th it was centred near Lat. 12°N., Long. 84°E. Continuing to move in a westnorthwesterly course the depression weakened and crossed the coast near Madras by the morning of the 7th and became unimportant during the course of that day.

In association with this depression widespread and locally heavy rain fell in southeast Madras and the north Madras coast. A few noteworthy rainfalls are given in the following table :—

District.	Station.	6th.	7th.
Nellore . . .	Nellore	5	14
Nellore . . .	Atmakur . . . . .	...	8
Nellore . . .	Kandukur . . . . .	...	11
Nellore . . .	Kavali . . . . .	...	8
Nellore . . .	Iskapalle . . . . .	...	5
Nellore . . .	Krishnapatam	6	9
Nellore . . .	Gudur	5	5

District.	Station.	6th.	7th.
Nellore . . .	Rapur	5	..
Nellore . . .	Venkatagiri	5	..
Nellore . . .	Sulurpet	8	..
Nellore . . .	Tada	11	..
Chingleput . . .	Attipet	6	..
Chingleput . . .	Ponneri	7	..
Chingleput . . .	Sathiavedu	6	..
Chittoor . . .	Kalahasti	7	..

16. *Shallow Depression of 2nd to 6th December 1936 in the Bay of Bengal.*—A low pressure area in the neighbourhood of the Gulf of Siam caused unsettled weather in the south Andaman Sea from the 28th to 30th November. On the 1st December the low pressure wave moved westwards to the Andaman Sea where conditions became markedly unsettled. The upper winds over Victoria Point were of force 6-7 B. S. from S. and SE between 1 and 4 Km. and those over Port Blair were N, 5 B. S. at 0.5 Km. (Limit of P. B. ascent). By the morning of the 2nd the unsettled

conditions moved westwards and concentrated into a shallow depression with central region near Lat. $11^{\circ}\text{N}.$;

Long. $91^{\circ}\text{E}.$ The observations of Port Blair and those of the following ships are significant.

Date.	Hr. of obsn.	Name of Station. or Ship.	Position.		Wind.		Sea.	Swell.	Remarks.
			Lat. N.	Long. E.	Dir.	For.			
2nd December	0800	Port Blair . . . . .	..	..	S	3	Slight.	..	..
"	0630	S. S. Jalamani	11.5	89.3	N	4	Mod.	Mod. from E.	..
"	0530	S. S. Julavihar	12.8	90.6	ENE	5	Rough.	Mod. from NE.	Drizzle.
"	0800	S. S. Bahadur	12.2	91.1	NE	6	Rough.	"	Rainsquall.

The depression without further intensification moved in a northerly direction and on the morning of the 3rd lay centred near Lat. $13\frac{1}{2}^{\circ}\text{N}.$, Long. $91\frac{1}{2}^{\circ}\text{E}.$ During the course of the next 24 hours it weakened and on the morning of the 4th lay as a trough of low pressure extending from the South to the central Bay. Without any more concentration it persisted there till the 6th after which it filled up.

17. *Depression of 30th to 31st December 1936.*—On the morning of the 30th a heavy rainfall of 4" at Trincomalee and a fall of pressure over east Ceylon and over the south Coromandel coast indicated that weather was unsettled in the southwest Bay off Ceylon. By the evening of the same day pressure further fell along the east Ceylon coast where a concentrated negative pressure departure appeared and a depression formed with centre at 17 hours near Lat. $8\frac{1}{2}^{\circ}\text{N}.$, Long. $82^{\circ}\text{E}.$ By the next morning the depression moved southwestwards across Ceylon to the southeast Arabian Sea. Weakening thereafter it moved away westwards as a low pressure wave by the next day.

WESTERN DISTURBANCES.

The following is a list of the western disturbances which affected the weather in northern India during the year with dates on which they did so and brief notes on the precipitation that they produced :—

Serial No.	Date.	REMARKS.
	<i>January.</i>	
1	1—4 . . .	Fairly widespread rain or snow in the north-west frontier, Kashmir, the north Punjab and the hills of the United Provinces between the 1st and 4th.
2	6—9 . . .	Light rain or snow at a few stations in the North-West Frontier Province on the 6th and 7th and local rain or snow in Kashmir between the 6th and 9th.

Serial No.	Date.	REMARKS.
	<i>January—contd.</i>	
3	8—11 . . .	Fairly widespread rain in Baluchistan on the 8th and 9th and in Kashmir on the 10th; local falls in the Punjab hills on the 10th and a few light showers in Kashmir on the next day.
4	13—14 . . .	Widespread light falls of rain or snow in north Baluchistan on the 13th with scattered light showers in Kashmir on the next day.
5	20—24 . . .	Local rain or snow in Kashmir with a few falls in the east and north Punjab and the west United Provinces on the 21st and light local rain in Central India with a few falls in the Central Provinces, the United Provinces and Kashmir on the 22nd. Widespread rain in the United Provinces to Assam on the 23rd and nearly general rain in Assam with a few falls in Bengal on the next day.
6	24—25 . . .	Gave no precipitation.
7	28—31 . . .	Scattered light showers in the United Provinces and the central parts of the country on the 28th. Fairly widespread rain in east Central India on the 29th and local showers in the east Central Provinces, the United Provinces and Chota Nagpur between the 29th and 31st with a few light showers in Bihar and Bengal on the 31st.
	<i>February.</i>	
8	1—2 . . .	Light local rain or snow in Kashmir with a few showers in Baluchistan on the 1st.
9	4—10 . . .	Fairly widespread rain in Kashmir, along the north-west frontier, in the east and north Punjab and the United Provinces, with a few falls in Sind and the southwest Punjab between the 5th and 7th. Scattered thunderstorms and rain in the United Provinces, Bengal Assam and Upper Burma between the 8th and 10th.

Serial No.	Date.	REMARKS.	Serial No.	Date.	Remarks.
	<i>February</i> <i>—contd.</i>			<i>April.</i>	
10	9—12	. Gave no precipitation.	22	1—3 . .	Fairly widespread thundershowers along the north-west frontier and in the north Punjab hills on the 2nd.
11	12—13		23	4—6 . .	Fairly widespread thunderstorm-rain in the North-West Frontier Province, Kashmir, the Punjab and the hills of the United Provinces on the 4th, and in Bengal, Assam and Upper Burma between the 5th and 6th.
12	15—18		24	6—7 . .	Local rain in the North-West Frontier Province on the 6th and local thunderstorm-rain along the north-west frontier, in Kashmir, the east and north Punjab and the west United Provinces with a few falls in the east Central Provinces on the 7th.
13	21—24	Widespread rainfall attended with thunderstorms along the north-west frontier, in Kashmir, the Punjab and the United Provinces on the 22nd and 23rd.	25	9—11 . .	Caused no precipitation.
14	25—27	Nearly general rain in Baluchistan and the North-West Frontier Province and local rain in Kashmir with a few falls in the Punjab on the 25th; fairly widespread rain in the North-West Frontier Province and Kashmir and local rain in the east and north Punjab, Sind and Baluchistan on the 26th.	26	17—20 . .	Scattered thunderstorms in the north Punjab and Kashmir with a few falls of rain in the North-West Frontier Province, on the 18th. Fairly widespread thunderstorms along the north-west frontier and in the Punjab with local rain in Kashmir and the north Punjab on the 19th and 20th.
15	28th February to 2nd March	Widespread rain in Baluchistan, the North-West Frontier Province, Kashmir and the east and north Punjab on the 28th, in the North-West Frontier Province, the Punjab, Kashmir and the United Provinces hills on the 1st March. A few falls also occurred in Sind and the southwest Punjab on the 28th and in the North-West Frontier Province and the Punjab hills and Kashmir on the 2nd.	27	22—24 . .	Widespread dust or thunderstorms in Baluchistan and the Punjab with fairly widespread rain in the North-West Frontier Province and Kashmir on the 23rd, and local rain in the North-West Frontier Province and Kashmir with local thunderstorms in the north Punjab on the next day.
	<i>March.</i>		28	28—29 . .	A few falls of rain or snow in Kashmir on the 28th and 29th.
16	6—10	Widespread rain in Baluchistan, the North-West Frontier Province, Kashmir, the east and north Punjab and the west United Provinces between the 6th and 10th; scattered showers in Sind on the 6th and in east Rajputana and Central India on the next day.		<i>May.</i>	
17	13—16	Local rain in Kashmir and scattered thundershowers in the North-West Frontier Province and the north Punjab between 14th and 16th.	29	1—3 . .	A few thundershowers on the western Himalayas between the 1st and 3rd.
18	21—22	Scattered drizzles and dust-storms along the North-West frontier with a few light showers in Kashmir on the 21st.	30	4—6 . .	Fairly widespread dust or thunderstorms, with local falls of rain from the North-West Frontier Province to the west United Provinces between the 4th and 6th.
19	22—23	Scattered light rain in the North-West Frontier Province on the 23rd.	31	9—10 . .	Gave no precipitation.
20	24—27	Local rain in Kashmir and the North-West Frontier Province on the 24th, along the north-west frontier on the 25th and in Kashmir and the hill districts of the Punjab and the United Provinces between the 25th and 27th.	32	11—14 . .	Scattered rainfall in the North-West Frontier Province with dust or thunderstorms in the west United Provinces and the east Punjab between the 11th and 14th.]
21	27—29	Local thundershowers along the northwest frontier on the 27th, in Kashmir and the Kumaon hills on the 28th and in the east and north Punjab, Kashmir, west Rajputana and the west United Provinces on the next day.	33	17—22 . .	A few falls of rain in Baluchistan on the 18th, widespread dust or thunderstorms there on the next day and local falls of rain in and near the Western Himalayas between the 19th and 22nd.
			34	21—22 . .	Scattered dust-storms in North Baluchistan on the 22nd; widespread dust or thunderstorms in Baluchistan and fairly widespread rain in the North-West Frontier Province on the 23rd and local thunderstorms in the Punjab and the North-West Frontier Province on the next day.
				<i>June, July, August and September.</i>	No well marked western disturbances.

Serial No.	Date.	Remarks.
	<i>October.]</i>	
35	31st October to 3rd November.	Local rain or snow in the North-West Frontier Province, Kashmir and the north Punjab with local dust-storms in Baluchistan on the 31st October and scattered dust or thunderstorms along the North-West Frontier, Kashmir and the north Punjab between the 1st and 3rd November.
	<i>November.</i>	
36	4—7 . .	Light thundershowers at a few stations in the North-West Frontier Province and the north Punjab between the 4th and 6th and local rain or snow in Kashmir on the 4th with a few falls there on the next day.
37	7—8 . .	Gave no precipitation.
38	11 . .	
39	14—15 . .	A few falls of rain or snow in Kashmir on the 15th.
40	19—21 . .	Gave no precipitation.
41	23—25 . .	
42	25—26 . .	A few falls of rain or snow in Kashmir on the 26th.
43	28th November to 2nd December.	A few light showers along the north-west frontier and in Kashmir with a few dust-storms in Baluchistan on the 30th and fairly widespread rain in Kashmir and the Punjab with a few falls in the adjoining districts of the United Provinces and Rajputana on the 1st and 2nd December.
	<i>December.</i>	
44	3—4 . .	Gave no precipitation.
45	6—9 . .	Local rain in Baluchistan, Sind and the south-west Punjab on the 6th and 7th and in the Punjab and the west United Provinces on the 8th and 9th and a few falls of rain in Baluchistan and Kashmir on the 8th.
46	8—9 . .	
47	8—13 . .	Fairly widespread rain in Baluchistan and the North-West Frontier Province between the 9th and 13th and in Kashmir between the 10th and 13th and a few falls in the Punjab between the 10th and 13th and in Sind on the 10th.
48	15—22 . .	A few light showers along the north-west frontier on the 15th, local rain in and near the western Himalayas on the 15th and 16th and fairly widespread rain in the United Provinces on the next two days. Local thunderstorms and rain in the central parts of the country and north-west India on the 19th and fairly widespread thunderrain in east Central India on the 18th and 19th, in Bihar and Chota Nagpur on the 19th and 20th and in Assam on the 21st, with a few falls in the Central Provinces on the 19th and 20th, in Bengal and Orissa on the 20th and 21st and in Assam on the 20th and 22nd. Local thunderrain also along and near the hills of the Punjab on the 19th, and in the United Provinces hills on the next day.

Serial No.	Date.	Remarks.
	<i>December—contd.</i>	
49	19—20 . .	A few falls of rain in Kashmir on the 19th.
50	22—25 . .	Local rain in Kashmir, the North-West Frontier Province and in and near the Punjab Hills on the 24th and 25th, in Sind on the 24th and in the hills of the United Provinces on the next day, with a few falls in Baluchistan between the 22nd and 24th and in Gujarat on the latter date.
51	27—28 . .	Gave no precipitation.
52	30—31 . .	A few falls of rain or snow in Kashmir on the 30th and 31st.

LOCAL STORMS.

Of the local storms reported in newspapers, the following are noteworthy :—

February 7th.—A passenger train was completely blown off the rails by a severe thunderstorm near Abhanpur Railway Station in the Central Provinces. Several carriages were telescoped, the Guard was seriously injured, and several passengers received slight injuries.

February 11th.—A severe hailstorm occurred at Dhulia (East Khandesh) which caused considerable damage to mango and cotton crops.

February 15th.—A thunderstorm with heavy squalls swept over Repalle (Guntur), blowing off tin sheets from the roofs of factories and overturning 15 carts in a neighbouring village. Two occupants of the carts were reported killed.

February 20th.—Hailstorms of the size of an apple were reported to have fallen at Gauhati during a severe hailstorm on February 20th.

At Sibsagar some damage to property occurred during a hailstorm accompanied with a strong gale, the intensity of which was considered to be a record for the district.

March 9th.—Dhubri had a severe hailstorm, in which one man was reported killed. The squall accompanying the storm blew down several houses and damaged one ferry steamer.

March 18th.—A violent hailstorm passed over Digboi (Dibrugarh), the seat of the Assam Oil Co., Ltd. Some production wells were damaged, and heavy squalls blew off the roofs of family quarters belonging to the company.

March 20th.—During a nor'wester in Calcutta, hailstones measuring nearly an inch in diameter were reported to have fallen. The roofs of several saloon cars in a garage were pierced by the stones, and many window panes in the city broken. Deterioration of visibility brought traffic to a standstill, and gharry-horses struck by hailstones ran amock.

March 21st.—A violent storm occurred in the village of Parmadhudja (Khulna), which was responsible for uprooting many trees and blowing away the roofs of several houses.

March 24th.—Noakhali district had a severe hailstorm. In the village of Sonaimuri the buildings of a dispensary and a school were blown down, and in one case the corrugated iron sheets of a roof were reported to have been carried by the wind to a distance of half a mile.

March 30th.—At Thakurgaon (Dinajpur) a severe storm demolished many huts and uprooted a number of trees. Well-secured corrugated roofs and varandahs were reported to have been blown off to distances of 100 and 200 yards.

April 21st.—The municipal office building at Burdwan was struck by lightning during a thunderstorm. It was damaged but no loss of life occurred.

April 29th.—Siliguri and the whole of the Terai region experienced a severe hailstorm. Huts were damaged and their roofs blown off.

May 1st and 2nd.—A heavy gale affected Bijapur district. Crops were damaged and trees uprooted.

May 2nd.—5 persons lost their lives as a result of house collapse during a storm at Dumka.

A severe hailstorm occurred at Jamalpur (Mymensingh). A number of houses were razed to the ground, roofs of several important buildings blown away, and jute crop seriously damaged.

May 3rd.—A nor'wester occurred at Calcutta, during which wind is reported to have reached a velocity of 53 miles per hour. A large tree was uprooted in Chowringhee, and vehicular traffic brought to a standstill by strong wind and bad visibility.

May 7th.—A thunderstorm with locally heavy rain for about half an hour occurred at Calcutta, flooding low-lying areas and causing interruption in one section of the tram service. A tree crashed on a motor car injuring two Marwaris.

Bareilly had a severe dust-storm which uprooted several trees and blew off a number of roofs. Strong wind helped several fires to break out.

May 9th.—A violent rain-squall affected south Bengal. Telegraphic communication was interrupted and traffic in the streets of Calcutta had to be suspended. A number of houses collapsed and crops seriously damaged. A large number of birds were killed.

In the village of Aloga (Shimoga) a man was killed by lightning while taking shelter under a tree during a thunderstorm.

May 10th.—At Udipi (South Canara) lightning struck a house causing cracks in the walls and doors, and killing one man.

May 12th.—A pandal on the old race course of Rangoon collapsed during a rainstorm. Three persons were killed and 27 injured, 9 seriously.

May 13th.—Hailstones as big as potatoes were reported to have fallen at Kananpur (Dehra Dun) causing considerable damage to crops.

A large boulder was dislodged by a storm and rolled down on a woman who was engaged in road-making at the foot of Nandi Hills (Mysore). She was seriously injured and died in hospital.

MGIPC—S3—VIII-3-140—24-1-38—520,

May 14th.—A severe dust-storm raged over Cuddapah for nearly two hours, colouring the sky red with blowing dust.

During a heavy thunderstorm at Patna, a milkmaid was struck dead by lightning while cutting grass in a field. A boat in the Ganges capsized and the passengers thrown overboard.

May 17th.—A heavy thunderstorm occurred in Dhanbad Sub-Division. Lightning struck at several places causing loss of life and setting a paddy store on fire.

A rainsquall at Kolhapur caused damage to crops and uprooted trees.

June 4th.—A man and his horse were struck dead by lightning during a thunderstorm near Hoshiarpur (Punjab).

June 5th.—A severe storm occurred over Fatehgarh (United Provinces) and surrounding area, causing considerable damage to buildings and telephone service. Train service was also interrupted.

June 28th.—A severe thunderstorm accompanied with heavy rain occurred at Ootacamund. It uprooted a large number of trees and blew off the roofs of several buildings. The electric supply and telegraph and telephone services were disorganised and several slips occurred on the roads. Two persons were reported to have been buried under the debris owing to collapsing of houses. A railway train was also held up near Fernhill railway station.

June 29th.—A violent dust and thunderstorm occurred at Drigh Road on the evening of June 29th. The gale reached a speed of 81 miles per hour, causing severe damage, to many buildings at the Air Port and Royal Air Force Lines, and injuring many people.

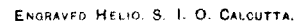
September 9th.—A severe thunderstorm accompanied with rain flooded the streets of Multan and damaged many houses. Several casualties occurred one man being reported killed.

September 12th.—A boy of fourteen, while taking shelter near a cow-shed in Shencottah during a thunderstorm, was struck dead by lightning.

WINDS OF FORCE NINE OR MORE IN INDIAN SEAS.

Excluding dates of storms and depressions, a description of which has been given above, winds of force nine or more were recorded on ships in the Indian Seas during the year 1936 on the following occasions :—

Date.	Name of ship.	APPROXIMATE POSITION.	
		Lat. N.	Long. E.
25th June .	S.S. City of Tokio .	17	72
26th June .	Ditto .	16	73
27th June .	S.S. Rance .	17	72
28th June .	S.S. City of Salisbury .	13	85



Depression.

TRACKS OF DEPRESSIONS in the Indian Seas 1936.

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

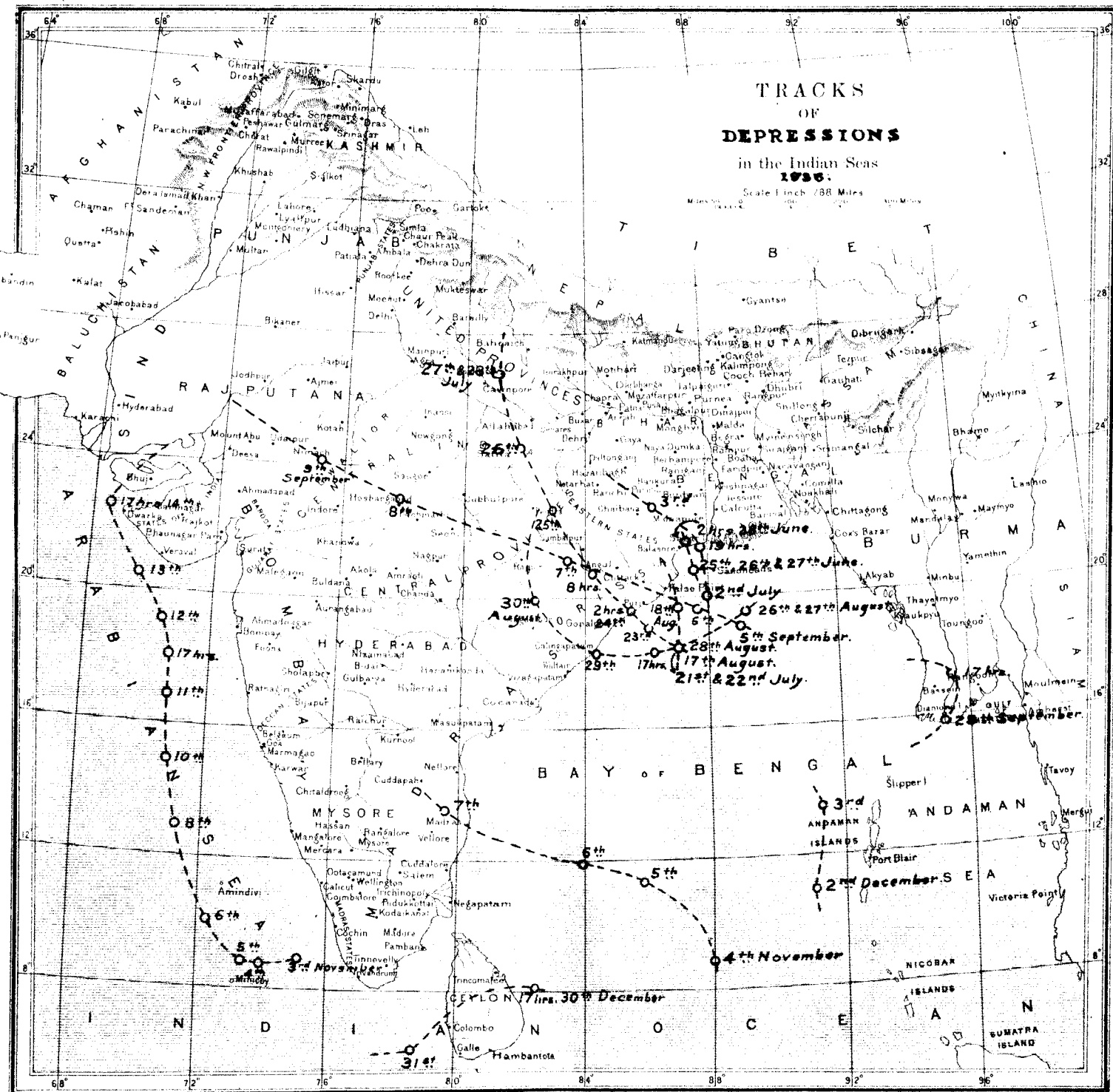
Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles

Scale 1 inch = 88 Miles



Errata to India Weather Review, 1936, Annual Summary, Part D.

Page.	Place.	For.	Read.
D 2	February 11, hour 4 51 20, 'phase' column	S	S*
D 3	March 2, 'remarks' column	PR	PR ₁
D 6	July 26, hour 7 56 49, 'phase' column	P ¹	P'
D 7	October 5, hour 6 18 37, 'phase' column	ePR,	ePR ₁
D 19	November 19, hour 21 30 0, 'phase' column	P ¹	P'
D 19	November 22, hour 18 38 52, 'phase' column	P ¹	P'
D 20	December 26-27, hour 23 11 0, 'phase' column	P ¹ (?)	P'(?)
D 29	November 2, 'remarks' column	49°·5E	149°·5E
D 32	January 15, 'remarks' column	no	not
D 35	July 5, 'remarks' column	124°E	124°·9E

INDIA WEATHER REVIEW, 1936.

ANNUAL SUMMARY.

PART D.

SEISMIC RECORDS.

STATION—UPPER AIR OBSERVATORY, AGRA.

Lat. 27° 8' 15" N. *Long.* 78° 0' 45" E. *Height above M. S. L.* 163 metres.

Lithologic Foundation :—Indo-Gangetic Alluvium.

Instruments :—Omori-Ewing Seismograph North-South (N) component, and Milne-Shaw Seismograph East-West (E) component, both installed in an underground room.

INSTRUMENTAL CONSTANTS.

Component	Steady mass (Kg.)	T (sec.)	Vm	ε	Paper speed (mm./min.)
N	45	32.5	29	1	12
E	0.47	12	250	20:1	8

TABLE D₁.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Jan. 1	E	e	3 55 54	...	...	...		Jan. 14	E	IP	14 30 48	...	...	7700	
" 2	E	e	0 53 52	...	...	...			E	PR ₁	33 6	...	...	...
	E	Mn	1 11 9	25	44	...			E	PR ₂	34 58	...	...	...
" 2	E	P	17 36 6	...	...	5790			E	IS	39 59	...	...	...
	E	S	43 35	...	...	...			E	PS	40 36	...	...	...
	E	PS	44 8	...	...	...			E	SR ₁	14 11	...	...	...
	E	SR ₂	48 38	...	...	...			E	SR ₂	47 32	...	...	...
	E	L	52 11	...	...	...			E	L	53 41	...	...	...
" 2	E	IP	22 41 5	...	...	3610		" 14	E	e	17 54 46	...	...	7700	
	N, E	S	46 28	...	...	...			E	ePR ₁	58 35	...	...	...
	E	SR ₁	48 33	...	...	...			E	IS	18 5 15	...	...	...
	E	L	50 50	...	...	...			E	PS	5 55	...	...	...
" 7	E	e	1 55 34	...	...	...			E	SR ₂	12 55	...	...	...
	E	i	57 27	...	...	...		" 17	E	e	12 19 28	...	...	...
" 13	E	e	18 15 17	...	...	...			E	i	20 45	...	...	...
	E	Mn	28 54	...	...	...		" 20	E	IP	17 5 15	...	...	5355	
" 14	E	e	5 56 23	...	...	...			E	i	5 33	...	...	...
	E	i	6 12 43	...	...	...			E	i	7 27	...	...	...

TABLE D₁—contd.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
	E	IS	12 20	...	...	...			E	SR ₁	9 39	...	...	...
	E	PS	12 56	...	...	...			E	F	16 40	...	...	...
	E	SR ₁	15 39	...	...	...		Feb. 16	N	e	14 35 7	...	...	...
	E	SR ₂	16 49	...	...	...			E	i	40 49	...	...	...
Jan. 24	E	e	16 54 47	...	...	...		" 18	E	P	14 33 0	...	...	1135	
	E	F	17 28 53	...	...	...			E	P	34 2	...	...	...
Feb. 4	E	e	12 17 1	...	...	...	Slight, near.		E	S	34 52	...	...	...
	E	i	17 32	...	...	...			E	S	36 7	...	...	...
	E	F	30 ...	...	...	...			E	F	15 15 ...	...	...	...
" 6	E	e	4 16 37	...	...	...		" 21	E	eP	6 24 29	...	...	2080	Time of incidence of various phases of the shock uncertain by ± 5 seconds.
" 7	E	IP	9 1 25	...	...	2520	IP in E. Epoc: Lat. 32°N, Long. 102°E (Manila).		E	PR ₁	24 41	...	...	...
	N	P							N, E	S	28 1	...	...	...
	E	PR ₁	1 46	...	...	...			E	SR ₁	28 37	...	...	...
	N, E	IS	5 33	...	...	...			N	eL	29 29	...	...	...
	E	SR ₁	6 34	...	...	...			N	Mn	31 39	14	26	...	
	E	L	7 46	...	...	...			E	Mn	33 54	11	18	...	
	E	F	12 18 ...	...	...	...			N	F	55 ...	...	...	...
" 8	E	P	12 22 35	...	...	7790		" 21	E	eP	11 25 29	...	...	1190	Time of incidence of various phases of the shock uncertain by ± 5 seconds.
	E	ePR ₁	25 5	...	...	...			E	eS	27 25	...	...	...
	E	IS	31 50	...	...	...			E	L	28 39	...	...	...
	E	PS	32 20	...	...	...			E	Mn	29 49	14	8	...	
	E	SR ₁	33 37	...	...	...			E	F	48 ...	...	...	...
	E	F	13 56 ...	...	...	...		" 21	E	eP	17 8 32	...	...	7690	Time uncertain by ± 5 seconds. Felt at Osaka in Japan.
" 10	E	e	18 23 39	...	...	...			E	ePR ₁	11 12	...	...	...
	E	i	28 56	...	...	...			E	IS	17 42	...	...	...
	E	F	19 32 ...	...	...	...			E	PS	18 21	...	...	...
" 11	N	P	4 50 17	...	...	720	Felt over a wide area in Bihar, parts of the United Provinces, Bengal and Nepal.		E	SR ₁ (?)	22 2	...	...	...
	N	S	51 0	...	...	...			E	L	31 22	...	...	...
	N	S	51 20	...	...	...		" 21	E	e	19 27 1	...	...	...	Time uncertain by ± 5 seconds. Tremors.
	N	S	51 45	...	...	...			E	F	40 ...	...	...	...
" 11	N	F	5 14 ...	...	...	...		" 22	E	eP	15 46 31	...	...	11255	Time of incidence of various phases of the shock uncertain by ± 10 seconds.
	E	P	20 10 16	...	...	...			E	ePR ₁	50 45	...	...	...
	E	P	11 21	...	...	1290	Felt in Assam and Bengal.		E	ScPcS	56 55	...	...	...
	E	S	12 16	...	...	...			E	PPS	16 0 1	...	...	...
	N	e	12 28	...	...	...			E	SR ₁ (?)	4 47	...	...	...
	E	S*	13 2	...	...	...			E	L(?)	20 5	...	...	...
" 12	N, E	S	13 36	...	...	...			E	Mn	32 22	19	44	...	
	E	F	32 ...	...	...	...			E	F	19 11 ...	...	...	...
" 15	N, E	IP	12 57 15	...	...	6665		" 22	E	ePR ₁	19 41 31	...	...	11255	Time uncertain by ± 10 seconds. Apparently an after-shock of the previous one.
	N, E	PR ₁	59 22	...	...	...			E	ScPcS	47 45	...	...	...
	N, E	IS	13 5 34	...	...	...			E	PPS	50 55	...	...	...
	E	PS	6 0	...	...	...			E	M	20 18 22	...	...	...
									E	Mn	26 55	20	17	...	
									E	F	22 20 ...	...	...	...
								" 24	E	e	5 43 13	...	...	...
									E	i	44 57	...	...	...
									E	F	6 0 ...	...	...	...

TABLE D₁—contd

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Feb. 24	E	e	7 4 13	...	...	...		Mar. 7	E	e	22 22 55	...	...	...	Tremors.
	E	F	35 ...	...	...	...			E	F	29 ...	...	...	...
" 24	E	e	16 34 53	...	...	...		" 9	E	e	20 6 40	...	...	...	Slight, near.
	E	i	39 38	...	...	...			E	i	7 26	...	...	...
	E	F	17 13 ...	...	...	...			E	F	16 ...	...	...	...
" 27	E	iP	10 13 51	...	...	6165		" 11	E	e	11 3 23	...	...	...	Slight, near.
	N	P							E	i	7 33	...	...	...
	E	PR ₁	15 56	...	...	...			E	F	36 ...	...	...	...
	E	PR ₂	17 6	...	...	...		" 17	E	eP	19 53 54	...	...	3590	Primary waves poor. Epc: North Sumatra, (Bata-via).
	N,E	IS	21 41	...	...	...			E	S	20 1 16	...	...	...
	E	PS	22 44	...	...	...			E	SR ₁	3 14	...	...	...
	E	ISR ₁	24 39	...	...	...			E	L	6 21	...	...	...
	E	SR ₂	27 41	...	...	...			E	Mn	16 ...	15	9	...	
	E	L	31 41	...	...	...			E	F	21 34 ...	...	...	...
	N	F	52 ...	...	...	...		" 18	E	e	12 3 58	...	...	...
" 27	E	e	17 0 41	...	...	...			E	i	12 34	...	...	...
	E	F	17 ...	...	...	...		" 18	E	e	22 35 11	...	...	...
" 28	E	e	3 26 14	...	...	...			E	F	23 13 ...	...	...	...
	E	F	4 48 ...	...	...	...		" 21	E	eP	2 0 26	...	...	4885	
" 28	E	eP	16 23 58	...	...	5190			E	S	7 3	...	...	...
	E	S	30 53	...	...	...			E	SR ₁	9 56	...	...	...
	E	eSR ₁	33 53	...	...	...			E	SR ₂	10 51	...	...	...
	E	SR ₂	35 8	...	...	...			E	L	13 28	...	...	...
	E	L	38 6	...	...	...			E	Mn	16 10	15	20	...	
	E	Mn	44 37	20	17	...		" 22	E	F	3 28 ...	...	...	...
	E	F	18 8 ...	...	...	...			E	P	12 28 36	...	...	9210	Epc: South-west of Solomon Island, (Chufung).
Mar. 1	E	eP	10 30 52	...	...	5550	Probably deep focus. Epc: South of Sakhalin Island. (Chufung).		E	IS	38 56	...	...	...
	E	IS	38 8	...	...	...			E	SR ₁	44 41	...	...	...
	N	i	38 13	...	...	...			E	SR ₂	48 22	...	...	...
	E	i	39 48	...	...	...			E	L(?)	57 22	...	...	...
	E	i	48 34	...	...	...			E	F	14 27 ...	...	...	...
	E	Mn	11 5 52	...	...	...		" 25	E	el	9 10 41	...	...	8665	
	E	F	13 7 ...	...	...	...			E	IS	20 37	...	...	...
" 2	E	iP	3 28 33	...	...	6145	From P and PR.		E	PS	21 16	...	...	...
	N	P							E	eSR ₁	25 47	...	...	...
	E	iPR ₁	30 40	...	...	...			E	F	10 22 ...	...	...	...
	E	ePR ₂	31 37	...	...	...		" 25	E	i	14 27 50	...	...	...
	N,E	S	36 21	...	...	...			E	F	37 ...	...	...	...
	E	PS	36 53	...	...	...		Apr. 1	E	P	2 18 19	...	...	5700	Maximum at reflected secondary in E. Great. Epc: 3° N., 123° E. (J. S. A.). O: 2h. 9m. 16s. G. M. T.
	E	ISR ₁	40 7	...	...	...			N,E	i	18 30	...	...	...
	E	SR ₁	41 56	...	...	...			N,E	iPR ₁	20 30	...	...	...
	E	L?	45 46	...	...	...			N,E	PR ₂	21 18	...	...	...
	E	Mn	55 21	18	71	...			N,E	IS	25 48	...	...	...
	E	F	7 4 ...	...	...	...			N	SR ₁	29 21	...	...	...
" 2	E	e	20 3 15	...	...	...	Tremors.		N,E	SR ₂	31 0	...	...	...
	E	F	14 ...	...	...	...			N	L	34 12	...	...	...
" 6	E	e	12 20 14	...	...	...	Tremors.		E	L	34 21	...	...	...
	E	e	21 30	...	...	...			N	Mn	37 35	34	847	...	
	E	F	37 ...	...	...	...			E	F	6 30 ...	...	...	...

TABLE D₁—*contd.*

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Apr. 1	E	P	20 20 2	...	...	5500		Apr. 19	E	IP	9 8 50	...	...	2445	
	E	PR ₁	22 0	...	...	...			N	eP					
	E	PR ₂	22 45	...	...	...			N, E	IS	12 51	...	...	...
	E	IS	27 15	...	...	...			N	L	14 40	...	...	...
	N	I	27 21	...	...	...			N	M	16 21	...	...	...
	E	PS	27 50	...	...	...			N	Mn	17 4	26	321	...	
	E	SR ₁	30 42	...	...	...			E	Mn	20 56	17	110	...	
	E	SR ₂	32 8	...	...	...			N	F	11 6	...	...	...
	E	L	35 27	...	...	...			E	F	12 7	...	...	...
	E	M	40 10	...	...	...		„ 20	E	e	18 17 45	...	...	...
	N	Mn	46 16	19	26	...			E	F	19 1 0	...	...	...
	E	Mn	47 30	17	25	...		„ 21	E	e	1 41 36	...	...	...
„ 2	E	F	22 31	...	...	...			E	e(S?)	45 31	...	...	...
	E	P	6 28 43	...	...	8450			E	F	Masked by the following shock.				
	E	PR ₁ (?)	31 17	...	...	...		„ 21	E	P	2 19 14	...	...	2345	
	E	S	38 30	...	...	...			E	PR ₁	19 47	...	...	...
„ 11	E	F	9 25	...	...	...			E	S	23 7	...	...	...
	E	e(P?)	4 2 17	...	...	...			E	SR ₁	23 58	...	...	...
	E	i(S?)	6 42	...	...	...			E	L(?)	25 4	...	...	...
„ 11-12	E	F	27	...	...	...		„ 22	E	I	10 35 22	...	...	...
	E	P	23 46 32	...	...	5365		„ 23	E	P	23 26 13	...	...	8330	Epc: 51°N., 178°E. (J.S.A.)
	E	iPR ₁	48 25	...	...	...			E	S	35 55	...	...	...
	E	PR ₂	49 11	...	...	...		„ 25	E	e	4 51 36	...	...	...
	E	IS	53 37	...	...	...		„ 27	N	eP	0 4 8	...	...	2535	
	E	iSR ₁	56 47	...	...	...			N	IS	8 17	...	...	...
	E	SR ₂	58 8	...	...	...		„ 27	E	IP	1 38 22	...	...	2490	
	E	F	0 33	...	...	...			E	IS	42 27	...	...	...
	E	P	21 0 59	...	...	6720	Epc: 10°N., 140° E. (Manila).		E	SR ₁	43 21	...	...	...
	E	PR ₁	3 11	...	...	...		„ 27	E	F	2 30	...	...	...
	E	S	9 21	...	...	...		„ 27	E	P	3 41 51	...	...	2520	
	E	iSR ₁ (?)	12 51	...	...	...			E	eS	45 59	...	...	...
„ 15	E	eP	6 14 33	...	...	5190		„ 27	E	F	4 20	...	...	...
	E	IS	21 28	...	...	...		„ 27	E	e	4 57 36	...	...	...
	E	PS	22 5	...	...	...			E	F	5 11	...	...	...
	E	eSR ₁	24 28	...	...	...		„ 27	E	eP	5 47 36	...	...	2420	
	E	F	7 0	...	...	...			E	S	51 36	...	...	...
„ 15	E	e	19 5 41	...	...	...		„ 27	E	F	6 20	...	...	...
	E	I	13 51	...	...	...		„ 27	E	I	8 11 7	...	...	...	Slight, near.
	E	F	20 3	...	...	...			E	I	11 40	...	...	...
„ 19	E	e	1 1 58	...	...	...		„ 28	E	eP	1 14 0	...	...	2610	
	E	I	2 55	...	...	...			E	S	18 15	...	...	...
	E	F	12	...	...	...			E	F	38	...	...	...
„ 19	N, E	P	5 19 40	...	...	9120	Epc: 9° S., 156° E. (J. S. A.). O: 5h. 7m. 12s. G. M. T.	„ 28	E	eP	5 51 49	...	...	9210	
	E	PR ₁	22 49	...	...	...			E	S	6 2 9	...	...	...
	E	PR ₂	24 43	...	...	...			N	I	2 22	...	...	...
	N, E	IS	29 56	...	...	...						
	N, E	SR ₁	35 23	...	...	...						
	E	SR ₂	38 57	...	...	...						
	N	L(?)	44 53	...	...	...						
	E	L(?)	46 46	...	...	...						
	E	F	Masked by the following shock.												

TABLE D₁—*contd.*

Date.	Compt.	Phase.	G. M. T	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Apr. 28	E	iP	13 45 33	...	...	6170		May 20	E	e	0 25 55	...	...	...
	E	S	53 23	...	...	...			E	e	29 49	...	...	...
	N	i	53 28	...	...	...			E	F	Lost while changing chart.				
	E	F	14 40 ...	...	...	...		" 20	E	P	3 17 57	...	...	9165	Epc. 8° S., 160° E. (J. S. A.).
" 28	E	eP	18 32 27	...	...	2500			E	ePR ₁	21 13	...	...	...
	N,E	iS	36 33	...	...	...			E	PR ₂	22 55	...	...	...
	E	SR ₁	37 27	...	...	...			E	iS	28 15	...	...	...
	E	F	19 14 ...	...	...	...			E	PS	29 2	...	...	...
May 7	E	i	1 58 8	...	...	...	Slight, near.		E	SR ₁	33 45	...	...	...
	E	Mn	2 0 41	10	10	...			E	SR ₂	37 13	...	...	...
	E	F	24 ...	...	...	...			E	L	45 11	...	...	...
" 8	E	e	2 54 10	...	...	...	Slight, near.	" 27	E	iP	6 20 27	...	...	490	Shock felt over a wide area in Northern India. Epc: 28° N., 82° E.
	E	i	54 40	...	...	...		N	P	...		...	...
" 8	E	i	9 20 59	...	...	...		N,E	P	20 50		...	...	...
	E	iS	25 18	...	...	...		N	S	21 23		...	...	...
" 8	E	IP	15 29 17	...	...	2535		N,E	S	21 50	...	...	...	...
	E	iS	33 26	...	...	...		E	F	Masked by the following shock.					
	E	SR ₁	34 21	...	...	...		" 27	E	e	9 8 33	...	...	...
	E	F	16 17 ...	...	...	...			E	i	9 33	...	...	...
" 10	E	i	4 30 18	...	...	...	Tremors.	" 27	E	e	13 26 50	...	...	...
" 10	E	eP	6 0 15	...	...	...			E	e	27 29	...	...	...
	E	e(S?)	8 13	...	...	...		" 28	E	S?	19 30 27	...	...	...
	E	F	34 ...	...	...	...			E	SR ₁	35 40	...	...	...
" 11	E	P	17 39 25	...	...	8650	Large waves poor. Epc: 4° S., 154° E. (Manila).	June 3	E	P	3 4 53	...	...	5655	
	E	PR ₁	42 19	...	...	...			E	S	12 15	...	...	...
	E	S	49 21	...	...	...			E	PS	12 51	...	...	...
	E	PS	49 53	...	...	...			E	SR ₂	17 3	...	...	...
	E	SR ₁	54 14	...	...	...			E	F	4 8 ...	...	...	...
" 16	N	P	7 10 43	...	...	2410	Epc: Western China (Manila).	" 5	E	P	14 46 18	...	...	6655	Large waves poor.
	N	S	14 42	...	...	...			E	S	54 36	...	...	...
	N	SR ₁	15 25	...	...	...			E	PS	55 6	...	...	...
" 19	E	ePR ₁	7 31 56	...	...	...			E	SR ₁	58 46	...	...	...
	E	iS	36 12	...	...	...			E	F	15 52 ...	...	...	...
	E	SR ₁	38 51	...	...	...		" 9	E	P	16 43 7	...	...	...
	E	SR ₂	39 27	...	...	...			E	S	48 23	...	...	...
" 19	E	P	20 59 44	...	...	6080	Epc. 1° N., 141° E. (Manila).		E	SR ₁	51 9	...	...	...
	E	ePR ₁	21 1 49	...	...	...			E	SR ₂	52 13	...	...	...
	E	iS	7 29	...	...	...			E	F	18 33 ...	...	...	...
	E	PS	7 59	...	...	...		" 10	E	e	3 5 43	...	...	...
	E	SR ₁	13 2	...	...	...			E	F	Masked by the following shock.				
" 19	E	i	21 32 29	...	...	...		" 10	E	P	3 31 58	...	...	1390	
	E	e	43 49	...	...	...			E	eS	34 27	...	...	...
	E	i	45 24	...	...	...			E	SR ₁	34 48	...	...	...
	E	F	23 26 ...	...	...	...			N	i	34 53	...	...	...

TABLE D₁—*contd.*

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
June 10	E	eP	8 34 41	...	...	8335	△ from Brunner's chart. Depth of focus about 190 kms.	July 1	E	e	16 55 47	...	...	...
	E	pP	35 21	...	...	...			E	i	57 31	...	...	...
	E	S	43 56	...	...	...		" 3	E	i	3 21 53	...	...	...
	E	PS(?)	44 35	...	...	...		" 4	E	P	9 3 4	...	...	3090	
	E	sS	45 20	...	...	...			E	ePR ₁	3 46	...	...	...
	N	i	45 27	...	...	...			E	PR ₂	4 4	...	...	...
" 10	E	E	14 46 48	...	...	...			E	IS	7 54	...	...	...
	E	Mn	49 48	10	6	...			E	SR ₁	9 12	...	...	...
	E	F	15 20	...	...	...			E	L	11 5	...	...	...
" 10	E	eP	17 13 55	...	...	1265		" 5	E	iP	19 4 12	...	...	5565	△ from Brunner chart. Depth of focus about 90 kms. Epc: 4°0' S., 124°9' E. (J. S. A.)
	E	S	16 13	...	...	...			N	eP		...	...	...
	N	e	16 26	...	...	...			E	pP	4 31	...	...	...
	E	L	16 58	...	...	...			E	iPR ₁	6 27	...	...	...
	E	M	17 58	...	...	...			N, E	IS	11 16	...	...	...
	E	Mn	19 50	9	27	...			E	sS	11 49	...	...	...
	E	F	18 18	...	...	...		" 13	N, E	eP	11 31 59	...	...	17010	Epc: 23°0' S., 70°2' W. (J. S. A.)
" 11	E	eP	9 46 32	...	...	1235			E	ScPcP	35 34	...	...	...
	E	eS	48 47	...	...	...			E	iPR ₂	39 17	...	...	...
" 15	E	e	7 58 41	...	...	...			E	ScPc PcS	42 32	...	...	...
	E	i	8 1 21	...	...	...			E	P ScPcS	46 1	...	...	...
" 16	E	e	15 27 36	...	...	...			E	PPS	49 2	...	...	...
	E	i	29 41	...	...	...			E	SR ₁	55 12	...	...	...
	E	F	52 24	...	...	...			E	SR ₂	12 1 15	...	...	...
" 18	E	P	14 58 55	...	...	1145	Felt at different parts of North and East Bengal.	" 22	E	P	9 0 31	...	...	835	
	P		15 0 5	...	...	...			E	P*	0 56	...	...	...
	S		0 55	...	...	...			E	P	1 18	...	...	...
	S		2 14	...	...	...			E	S	2 1	...	...	...
" 19	E	P	16 38 33	...	...	1710			E	S*	2 31	...	...	...
	E	PR ₁	38 47	...	...	...			E	F	Lost while changing chart.				
	E	S	41 33	...	...	...		" 23	E	P ¹	7 56 49	...	...	17010	Probably an after-shock of the earthquake of 18th July tabulated above. Epc: 22°8' S., 70°8' W. (J. S. A.)
	E	SR ₁	41 56	...	...	...			E	ScPcP	8 0 17	...	...	...
	E	F	17 32	...	...	...			E	PR ₂	4 6	...	...	...
" 29	N	P	14 32 41	...	...	1100	Peshawar shaken. Also felt at different parts of the Punjab.		E	ScPc PcS	7 18	...	...	...
	N	S	34 39	...	...	...			E	P ScPcS	10 44	...	...	...
" 30	N, E	iP	15 17 17	...	...	7035	Epc: 51° N., 161° E (J. S. A.)		E	PPS	13 43	...	...	...
	E	PR ₁	19 43	...	...	...			E	F	10 21	...	...	...
	E	PR ₂	21 5	...	...	...		Aug. 4	E	eP	14 17 3	...	...	4390	Epc: 19° N., 121° E. (Manila).
	N, E	IS	15 25 56	...	...	...			E	PR ₂	18 56	...	...	...
	N	PS	26 29	...	...	...			E	S	23 11	...	...	...
	E	SR ₁	30 16	...	...	...			E	SR ₂	26 25	...	...	...
	E	SR ₂	32 23	...	...	...			E	F	15 13	...	...	...
	N	M	43 35	...	...	...		" 14	E	e	22 13 40	...	...	...
	E	F	19 26	...	...	...			E	F	23 55	...	...	...
" 30	E	iP	19 29 57	...	...	1900		" 16	E	e	16 51 27	...	...	...
	N, E	S	33 14	...	...	...			E	F	17 9	...	...	...
	E	L	35 25	...	...	...		" 16	E	e	21 41 36	...	...	...
	N	F	20 1 0	...	...	...			E	e	45 39	...	...	...

TABLE D₁—contd.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936			H. M. S.	Sec.	μ	km.	
Aug. 17	E	i	14 12 33	...	...	...	Deep focus ?		E	SR,	42 51	...	...	...
	E	i	22 14	...	...	...			E	L	44 40	...	...	...
	E	F	16 14	...	...	...			E	Mn	49 18	19	34	...	
„ 18	E	e	0 12 52	...	...	...	Slight, near.		E	F	8 42	...	...	...
	E	e	13 36	...	...	...		Sept. 21	E	i	11 50 21	...	...	...
„ 22	E	iP	6 59 2	...	...	4000	Epc: 22° 3' N., 121° 5' E. Formosa Island.	„ 25	E	e	13 22 23	...	...	...
	N	e	59 56	...	...	...			E	F	14 30	...	...	...
	E	PR ₂	7 0 40	...	...	...		Oct. 3	E	P	21 59 1	...	...	5345	Epc: Celebes Sea.
	E	iS	4 49	...	...	...			E	pP(?)	59 11	...	...	...	O: 21h. 50m. 20s. G. M. T.
	N	e	4 58	...	...	...			E	PR ₁	22 1 7	...	...	...
	E	SR ₂	7 27	...	...	...			E	iS	6 5	...	...	...
„ 23	E	e	20 57 3	...	...	...			E	sS(?)	6 29	...	...	...
	E	F	Masked by the following shock.						E	SR ₁	9 53	...	...	...
„ 23	N, E	P	21 17 55	...	...	3000	Great. Maximum in secondary.	„ 5	E	F	23 40	...	...	...
	N	i	22 25	...	...	...	Epc: 5° 8' N., 95° 4' E. (J. S. A.) Off North Sumatra.		E	i	0 18 55	...	...	...
	E	iS	22 28	...	...	...			E	P	6 16 54	...	...	4980	
	N	Mn	26 39	29	509	...			E	ePR ₁	18 37	...	...	...
„ 24	E	e	22 37 17	...	...	...	Distant slight shock.		E	S	23 37	...	...	...
	E	i	46 35	...	...	...		„ 5	E	eSR ₁	26 41	...	...	...
	E	F	Lost while changing chart.						E	P	9 53 31	...	...	5620	Epc: 3° N., 126° 4' E. (J. S. A.). O: 9h. 44m. 38s. G. M. T.
„ 29	E	eP	12 44 49	...	...	1200	Slight.		N	e	53 36	...	...	...
	E	S	47 1	...	...	...			E	PR ₁	55 27	...	...	...
	E	F	13 21	...	...	...			E	PR ₂	56 18	...	...	...
Sept. 4	E	P	8 19 9	...	...	6020			E	iS	10 0 51	...	...	...
	E	iS	26 51	...	...	...			N	i	0 56	...	...	...
	E	PS	27 24	...	...	...			E	SR ₁	4 18	...	...	...
	E	SR ₁	30 36	...	...	...			E	SR ₂	5 43	...	...	...
	E	Mn	46 35	16	12	...			E	L	9 22	...	...	...
„ 8	E	iP	8 13 35	...	...	565	Slight, near.	„ 16	E	F	13 14	...	...	...
	E	P*	13 48	...	...	...			E	i	12 8 34	...	...	...
	N	e	14 33	...	...	...			E	i	18 35	...	...	...
	E	S	14 38	...	...	...		„ 18	E	e	16 44 49	...	...	...
	E	S	15 14	...	...	...			E	F	17 34	...	...	...
	E	F	32	...	...	...		„ 19	E	P	12 13 47	...	...	6010	Epc: Off Celebes.
„ 12	E	e	18 12 32	...	...	...			E	iS	21 28	...	...	...
„ 18	E	P	18 48 1	...	...	6020			E	PS	22 2	...	...	...
	E	ePR ₁	51 5	...	...	...			E	SR ₁	25 14	...	...	...
	E	S	55 43	...	...	...			E	SR ₂	26 48	...	...	...
	E	PS	56 15	...	...	...			E	L (?)	30 50	...	...	...
	E	SR ₁	59 42	...	...	...		„ 20	E	i	22 14 52	...	...	...	Slight shock. Felt at Gujrat in the Punjab.
	E	Mn	19 17 12	14	9	...			E	F	25	...	...	...
„ 19	E	i	1 23 35	...	...	...	Great. Earlier portion missed.	„ 23	E	eP	6 36 47	...	...	9020	Epc: 60° 8' N., 149° 4' W. (J. S. A.), Alaska.
	E	F	5 17	...	...	...			N, E	e	36 53	...	...	...	O: 6h. 24m. 24s. G. M. T.
„ 19	E	eP	6 36 31	...	...	3110			N, E	ePR ₁	39 57	...	...	...
	E	ePR ₁	37 9	...	...	...			E	S	46 57	...	...	...
	E	S	41 22	...	...	...			E	PS	47 37	...	...	...
									E	F	9 57	...	...	...

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Oct. 26	E	eP	19 38 49	...	...	3555	Epc: West of Malay Peninsula. O: 19h. 32m. 18s. G. M. T.	Nov. 22	E	eP' (?)	18 38 45	...	...	15820	Epc: 14°N., 99°W. (U. S. C. G. S.). O: 18h. 19m. 17s. G. M. T.
	E	iS	44 8	...	...	...			E	ScPcP (?)	42 15	...	...	...
	E	SR ₁	45 59	...	...	...			E	F	21 1	...	...	...
	E	L	48 12	...	...	...						
" 26	E	i	23 24 37	...	...	...		" 23	N	eP	1 32 18	...	...	800	Epc: 28°5'N., 85°E. North of Nepal. O: 1h. 30m. 28s. G. M. T.
	E	i	31 27	...	...	...		E	P						
	E	iP	18 49 23	...	...	6790	Epc: 13°5'N., 145°E. Damage in Guam. O: 18h. 39m. 8s. G. M. T.	E	P*						
	E	iS	57 49	...	...	...			E	P (?)	33 10	...	...	...
	E	PS	58 13	...	...	...			N, E	S	33 45	...	...	...
	E	SR ₁	19 1 58	...	...	...			N, E	S*	34 13	...	...	...
	E	F	21 59	...	...	...			N, E	S	34 33	...	...	...
Nov. 1	E	i	2 58 33	...	...	...			N	Mn	36 7	10	23	...	
	E	F	3 16	...	...	...			E	Mn	36 7	8	27	...	
" 4	E	e	7 36 33	...	...	...			N, E	F	Lost while changing chart.				
12	E	i	2 34 33	...	...	...		" 23	E	e	15 50 21	...	...	...	Slight, near.
	E	e	8 38 57	...	...	...			E	i	51 2	...	...	...
	E	e	20 14 22	...	...	...			E	F	16 5	...	...	...
	E	i	22 7	...	...	...		" 29	E	e	4 16 31	...	...	...
	E	F	21 15	...	...	...			E	i	19 8	...	...	...
" 13	N	P	12 42 8	...	...	7235	Epc: 56°N., 165°E. (Strasbourg). O: 12h. 31m. 29s. G. M. T.		E	F	37	...	...	...
	E	iP						" 29	E	i	8 50 27	...	...	...
	E	PR ₁	44 35	...	...	...		" 29	E	e	22 58 41	...	...	...
	E	PR ₂	45 57	...	...	...			E	e	59 43	...	...	...
	E	iS	50 58	...	...	...			E	e	23 3 39	...	...	...
	N	i	51 8	...	...	...			E	F	57	...	...	...
	E	PS	51 27	...	...	...		" 30	E	e	2 51 46	...	...	...
	E	SR ₁	55 33	...	...	...			E	i	52 34	...	...	...
	E	SR ₂	57 53	...	...	...		" 30	E	F	55	...	...	...
	E	L (?)	13 2 7	...	...	...			E	e	7 6 48	...	...	...
	N	L (?)	2 56	...	...	...		" 30	E	e	7 8	...	...	...
	E	Mn	13 47	15	168	...			E	e	11	...	...	...
	N	Mn	16 9	18	412	...		" 30	E	F	23 55 17	...	...	5900	Large Waves poor. Epc: near Celebes Islands. O: 23h. 46m. 6s. G. M. T.
	E	F	16 59	...	...	...			E	P	...	...	...	...
" 14	E	e	4 36 37	...	...	...		Dec. 1	E	iPR ₁	57 19	...	...	...
	E	e	10 5 45	...	...	...			E	ePR ₂	58 12	...	...	...
	E	e	14 49 5	...	...	...			E	iS	0 2 52	...	...	...
	E	F	16 4	...	...	...			E	PS	3 16	...	...	...
	E	e	19 47 39	...	...	...			E	SR ₁	6 30	...	...	...
	E	F	20 44	...	...	...			E	SR ₂	8 4	...	...	...
" 15	E	i	22 17 32	...	...	...	Slight, distant.	" 1	E	i	6 16 58	...	...	...
	E	F	23 52	...	...	...			E	i	23 8	...	...	...
" 18	E	e	15 59 8	...	...	...		" 3	E	F	7 48	...	...	...
	E	i	16 3 38	...	...	...			E	e	20 1 33	...	...	...
	E	Mn	16 32	15	5	...			E	eS (?)	7 26	...	...	...
	E	F	17 8	...	...	...			E	F	40	...	...	...
" 19	E	P'	21 29 53	...	...	15300	Epc: 14°N., 91°W. (U. S. C. G. S.).	" 7	E	e	3 7 24	...	...	...	Tremors.
	E	ScPcP	33 18	...	...	...			E	F	11	...	...	...
	E	SR ₂	55 53	...	...	...		" 7	E	e	7 21 24	...	...	...	Tremors.
	E	Mn	22 37 44	21	22	...			E	i	22 19	...	...	...
	E	F	23 59	...	...	...			E	F	25	...	...	...

TABLE D₁—concl.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Dec. 8	E	eP	10 32 56	...	...	5090	Large waves poor.	Dec. 21	E	e	19 29 48	...	...	...	Slight, distant.
	E	S	39 46	...	...	...		" 22	E	e	8 2 6	...	...	...	Tremors.
	E	eSR ₁	42 45	...	...	...			E	F	6 ...	...	...	...
	E	SR ₂	43 54	...	...	...						
" 9	E	e	14 51 57	...	...	...		" 26	E	PR ₁	23 12 4	...	...	13000	Epc: North off New Zealand (Chiufeng).
	E	i	53 13	...	...	...			E	ScPcs	17 51	...	...	...
	E	F	15 19 ...	...	...	...			E	PS	21 47	...	...	...
" 13	E	iP	21 41 17	...	...	6845	Epc: Near 19° N., 141° E., near Caroline Islands. O: 21h. 31m. 5s. G. M. T.		E	PPS	23 6	...	...	...
	E	ePR ₁	43 45	...	...	...			E	SR ₁	28 19	...	...	...
	E	ePR ₂	44 56	...	...	...			E	SR ₂	32 41	...	...	...
	E	S	49 46	...	...	...			E	F	Masked by the following shock.				
	E	eSR ₁	54 0	...	...	...		" 27	E	e	0 23 57	...	...	...
	E	SR ₂	56 1	...	...	...			E	e	30 57	...	...	...
" 14	E	e	4 11 18	...	...	5170		" 27	E	e	2 29 23	...	...	...
	E	PR ₂	12 57	...	...	...			E	F	Lost while changing chart.				
	E	S	17 29	...	...	...		" 29	E	iP	14 59 44	...	...	8610	Large waves poor. Epc: 6° 6' S., 149° E.
	E	SR ₁	20 35	...	...	...			E	PR ₁	15 2 36	...	...	...
	E	F	5 29 ...	...	...	...			E	PR ₂	4 31	...	...	...
" 20	E	P	18 37 14	...	...	4455	Epc: South Sumatra. O: 18h. 29m. 35s. G. M. T.		E	IS	9 38	...	...	...
	E	S	43 29	...	...	...			E	PS	10 21	...	...	...
	E	i	43 52	...	...	...			E	SR ₁	15 16	...	...	...
	E	eSR ₁	46 44	...	...	...						
	E	SR ₂	47 47	...	...	...						

G. CHATTERJEE,

Meteorologist-in-charge, Upper Air Observatory, Agra.

STATION—COLABA OBSERVATORY, BOMBAY.

Lat. 18° 54' N. *Long.* 72° 54' E. *Height above M. S. L.* 6 metres.

Lithologic foundation : Trap Rock.

Instruments :—Milne-Shaw seismographs, North-South (N) and East-West (E) components, installed in an underground constant temperature room. Photographic registration.

INSTRUMENTAL CONSTANTS.

Component.	Steady mass (Kg.)	T. (sec.).	Vm	ε	Paper speed (mm./min.).
N	0.45	12	250	20 : 1	8
E	0.45	12	350	22 : 1	8

TABLE D₂.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
			H. M. S.	Sec.	μ	Km.	
1936. Jan. 1	N,E	e	4 1 ...	...	...	...	Tremors.
	N,E	F	4 16 ...	...	...	...
" 2	N	e	0 48 20	...	...	...	Slight, distant.
	E	Mn	1 16 20	23	10	...	
	N,E	F	2 0 ...	...	...	...
" 2	N,E	e	17 36 2	...	...	...	Slight.
	N,E	i	43 36	...	...	...
	E	Mn	18 4 32	15	5	...	
	N,E	F	54 ...	...	...	...
" 2	N,E	IP	22 40 55	...	...	3355	Moderate. Epc : 1° S., 97° E., North Sumatra.
	N,E	iS	46 2	...	...	...
	N,E	SR ₁	47 : 2	...	...	...
	N,E	L	49 47	...	...	...
	N	Mn	54 8	15	37	...	
	N,E	F	2 5 ...	...	...	...
" 4	N,E	i	1 13 5	...	...	...	Feeble near.
	N,E	F	30 ...	...	...	...
" 7	N,E	i	12 0 24	...	...	...	Feeble. Felt at Drosh.
" 8	N,E	e	11 5 ...	...	...	...	Tremors.
	N,E	F	38 ...	...	...	...
" 8	N,E	e	12 39 ...	...	...	...	Tremors.
	N	F	13 20 ...	...	...	...
	E	F	14 ...	...	...	...
" 13	N,E	eP	18 15 49	...	...	2810	Slight.
	N,E	iS	20 19	...	...	...
	E	SR ₁	21 11	...	...	...
	E	L	22 27	...	...	...
	N	Mo	27 19	...	...	...
	E	Mn	26 49	...	...	...
	N,E	F	19 56 ...	...	...	...
" 14	N,E	e	5 55 20	...	...	...	Slight, distant.
	N,E	i	6 4 49	...	...	...
	N,E	F	8 28 ...	...	...	...

TABLE D₂—contd.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
			H. M. S.	Sec.	μ	Km.					H. M. S.	Sec.	μ	Km.	
1936.								1936.							
Feb. 4	E	e	12 22 18	...	...	...	Feeble, near. Felt at Mukteswar. N-time uncertain.		N	Mn	25 5	19	37	...	
	E	i	22 36	...	...	...			E	Mn	25 20	23	74	...	
	E	M	24 17	...	...	...			N	F	17 5	...	...	...
	E	F	36 ...	...	...	...			E	F	36 ...	...	...	...
" 6	N,E	e	4 11 ...	...	...	...	Slight, very distant.	Feb. 16	N,E	e	14 31 ...	...	...	...	Tremors.
	N,E	e	16 9	...	...	...			N,E	F	15 36	...	...	...
" 6	N,E	e	20 51 ...	...	...	...	Feeble, distant.	" 19	N,E	eP	14 35 3	...	...	2155	Slight.
	N,E	e	55 30	...	...	...			N,E	iS	38 38	...	...	...
	N,E	F	21 55 ...	...	...	...			N,E	L	40 36	...	...	...
" 7	N,E	M	2 2 30	...	...	...	Seismic activity.		N	Mn	43 1	7	15	...	
" 7	N,E	iP	9 2 53	...	...	3310	Moderate. Epc. 32° N-102° E. (Manila), South China.		E	Mn	43 10	7	11	...	
	N,E	iS	7 57	...	...	...		" 19	N,E	F	15 35 ...	...	...	...	Tremors.
	E	SR ₁ (?)	9 20	...	...	...			N,E	e	8 32 ...	...	...	...
	N,E	L	11 ...	...	...	...			N,E	F	48 ...	...	...	...
	N	Mn	13 56	10	69	...		" 21	N,E	e	1 18 ...	...	...	...	Feeble.
	E	Mn	16 8	10	55	...			N,E	i	25 52	...	...	...
	N,E	F	11 27 ...	...	...	...			N	Mn	45 47	...	...	...
" 8	E	i	12 23 0	...	...	...	Slight. N-time uncertain.		E	Mn	45 37	...	...	...
	E	i	32 30	...	...	...			N	F	2 19 ...	...	...	...
	E	F	13 47 ...	...	...	...			E	F	2 25 ...	...	...	...
" 10	E	e	18 24 15	...	...	...	Seismic activity. N-time uncertain.	" 21	N,E	iP	6 25 41	...	...	2520	Slight.
	E	F	19 43 ...	...	...	...			N,E	iS	29 49	...	...	...
" 11	N,E	eP	4 51 20	...	...	1440	Moderate. Felt at Dumka, Motihari.		E	SR ₁	30 44	...	...	...
	N,E	iS	53 54	...	...	...			N,E	L	32 38	...	...	...
	N,E	SR ₁	54 16	...	...	...			N	Mn	37 20	...	...	...
	N,E	L	55 ...	...	...	...			E	Mn	37 16	11	7	...	
	N	Mn	55 53	3	30	...			N,E	F	7 56 ...	...	...	...
	E	Mn	55 53	4	11	...		" 21	N,E	e	11 0 ...	...	...	...	Feeble, distant.
	N	F	5 39 ...	...	...	...			N	Mn	35 18	...	...	...
	E	F	35 ...	...	...	...			E	Mn	35 32	...	...	...
" 11	E	e	20 11 52	...	...	...	Feeble, near. Felt at Cooch Behar, Dhubri, Gauhati and Salona.	" 21	N,E	F	12 55 ...	...	...	...	Feeble, distant.
	E	i	15 13	...	...	...			N	Mn	53 34	...	...	...
	E	F	21 41 ...	...	...	...			E	Mn	53 27	...	...	...
" 12	N,E	i	9 42 30	...	...	...	Feeble, very distant.		N,E	F	18 55 ...	...	...	...
	N,E	i	48 53	...	...	...		" 21	N,E	e	19 29 ...	...	...	...	Tremors.
	N,E	i	51 18	...	...	...			N,E	F	55 ...	...	...	...
	N,E	F	11 51 ...	...	...	...						
" 14	N,E	e	14 47 ...	...	...	...	Feeble, near. Felt at Shillong.	" 22	N,E	e	15 46 33	...	...	11065	Moderate.
" 15	N,E	iP	12 57 32	...	...	6880	Moderate. Epc. 4° 5' S., 133° 0' E. (J. S. A.), Dutch New Guinea.		N,E	PR ₁	50 39	...	...	...
	N,E	PR ₁	59 53	...	...	...			N,E	ScPcS	56 55	...	...	...
	N,E	iS	13 6 3	...	...	...			N,E	PS	59 56	...	...	...
	N,E	PS	6 37	...	...	...			N,E	SR ₁	16 5 30	...	...	...
	N,E	sS	7 5	...	...	...			N,E	SR ₁	9 31	...	...	...
	N,E	SR ₁	10 24	...	...	...			N	L	15 0	...	...	...
	N,E	SR ₂	12 44	...	...	...			N	Mn	27 9	...	...	...
	N,E	L	13 17 ...	...	...	...			E	Mn	24 41	23	27	...	
									N,E	F	18 53 ...	...	...	...

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase	G. M. T.	Period.	Amplitude.	△	Remarks.
			H. M. S.	Sec.	μ	Km.					H. M. S.	Sec.	μ	Km.	
1936.								1936.							
Feb. 22	N, E	e	19 41 24	...	...	...		Mar. 11	N, E	e	0 40 ...	...	...	...	Tremors.
	N, E	i	47 45	...	...	...			N, E	F	2 2 ...	...	...	...
	N, E	i	50 35	...	...	...		" 11	N, E	i	11 9 2	...	...	...	Seismic activity.
	N	Mn	20 25 42	...	...	...		" 13	E	e	4 24 ...	...	...	...	Tremors.
	E	Mn	22 41	...	...	...			N, E	F	5 13 ...	...	...	...
	N, E	F	21 55 ...	...	...	...		" 17	E	e	18 19	...	...	...	Tremors.
" 24	N, E	e	5 32 ...	...	...	...	Feeble, near.		E	F	51 ...	...	...	...
	N, E	F	6 2 ...	...	...	...		" 17	N, E	eP	19 55 54	...	...	3170	Slight.
" 24	N, E	e	7 5 ...	...	...	...			N, E	iS	20 0 49	...	...	...	Epc: North Sumatra, (Batavia).
	N, E	i	9 30	...	...	...			N, E	i	3 4	...	...	...
	N	Mn	15 12	...	...	...			E	Mn	14 27	...	...	...
	E	Mn	16 39	...	...	...			N, E	F	21 36 ...	...	...	...
" 24	N, E	F	54 ...	...	...	...	Feeble, near.	" 18	N, E	e	12 5 ...	...	...	...	Tremors.
	N, E	i	39 40	...	...	...			N, E	F	13 14 ...	...	...	...
" 26	N, E	F	17 5 ...	...	...	...	Tremors.	" 18	N, E	e	22 30 ...	...	...	...	Tremors.
	N, E	e	2 46 ...	...	...	...		" 19	N, E	F	23 8 ...	...	...	...
" 27	N, E	F	3 55 ...	...	...	...		" 21	E	M	1 5 30	...	...	...	Seismic activity.
	N, E	iP	10 14 2	...	...	6235	Slight.		N, E	e	1 59 28	...	...	...	Slight.
	N, E	iS	21 56	...	...	...			N	i	2 5 0	...	...	...
	N, E	i	22 56	...	...	...			E	Mn	13 23	13	7	...	
	N, E	F	11 55 ...	...	...	...		" 22	N, E	F	3 35 ...	...	...	...
" 28	N	Mn	4 3 24	...	...	...	Seismic activity.		N, E	P	12 28 58	...	...	9390	Slight.
	E	Mn	3 34	...	...	...			N, E	S	39 26	...	...	...	Epc: South-west of Solomon Islands (Chufeng).
" 28	N, E	eP	16 24 3	...	...	5045	Slight.	" 25	N, E	e	9 11 ...	...	...	...	Tremors.
	N, E	S	30 55	...	...	...			N, E	F	10 15 ...	...	...	...
	N, E	SR ₁	33 54	...	...	...		" 25	N, E	e	14 29 ...	...	...	...	Tremors.
	N, E	L	38 ...	...	...	...			E	e	32 13	...	...	...
	E	Mn	44 22 15	7	...	...			N, E	F	54 ...	...	...	...
" 28	N, E	F	17 56 ...	...	...	...		Apr. 1	N, E	eP	2 18 46	...	...	6090	Great.
Mar. 1	N	eP	10 32 3	...	...	6455	Moderate. Epc: South of Sakhalin Island. (Chufeng).		N, E	iP	18 52	...	...	...	Epc: 8° N., 123° E. (J. S. A.), O: 2h. 9m. 16s. G. M. T.
	N, E	iS	40 10	...	...	...			N, E	PR ₁	21 01	...	...	...
	N, E	SR ₁	47 20	...	...	...			N, E	PR ₂	21 56	...	...	...
	N	Mn	11 1 24	22	34	...			N, E	S	26 28	...	...	...
	E	Mn	2 48	19	23	...			N, E	PS	27 1	...	...	...
" 2	N, E	F	13 9 ...	...	...	...	Moderate. Epc: East off Hokkaido, Japan. (Manila).		N, E	SR ₁	30 3	...	...	...
	N, E	iP	3 29 7	...	...	7245			N, E	SR ₂	32 0	...	...	...
	N, E	iS	38 27	...	...	...			N, E	L	35 ...	...	...	...
	N, E	SR ₁	43 00	...	...	...			N	Mn	39 45	18	95	...	
	N, E	L	51 ...	...	...	...			E	Mn	38 20	26	446	...	
	N	Mn	4 0 30	15	14	...			N	F	6 14 ...	...	...	...
	E	Mn	0 37	15	15	...			E	F	6 17 ...	...	...	...
" 9	N, E	F	6 34 ...	...	...	...	Tremors.	" 1	N	iP	20 20 32	...	...	5950	Moderate. Preceded by tremors.
" 10	N, E	e	20 41 ...	...	...	...			N	iS	28 8	...	...	...	Apparently after-shock of previous great shock.
	N, E	F	1 54 ...	...	...	...						
	N, E	e	20 46 28	...	...	...	Slight, distant.								
	E	Mn	21 17 21	...	...	...						
	N, E	F	22 1 ...	...	...	...						

TABLE D₂—*contd.*

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
	N	Mn	48 17	...	...	...			N, E	SR ₁	13 59	...	...	...
	N	F	22 10	...	...	...			N, E	L	15 29	...	...	...
Apr. 2	N	eP	6 29 8	...	...	8230			N	Mn	21 10	15	50	...	
	N	iS	38 45	...	...	...			E	Mn	21 38	15	38	...	
	N	F	8 59	...	...	...			N, E	F	12 5	...	...	...
" 5	N	Mn	13 14 37	...	...	...	Seismic activity.	Apr. 20	N, E	e	18 10	...	...	...	Tremors.
	E	Mn	14 45	...	...	...			N, E	F	19 1	...	...	...
" 9	N, E	e	0 56	...	...	...	Tremors.	" 21	N, E	i	1 41 40	...	...	...
	N, E	F	1 18	...	...	...			N, E	F	3 2	...	...	...
" 9	N	e	16 16	...	...	...	Tremors.	" 23	N, E	P	23 27 5	...	...	9550	Slight. Epc: 51° N., 178° E. (J. S. A.).
	N	F	17 56	...	...	...			N, E	PR ₁	30 30	...	...	...
" 9	N, E	e	20 17	...	...	...	Slight, near.		N, E	S	37 40	...	...	...
	N	Mn	24 45	...	...	...			N, E	F	0 36	...	...	...
	E	Mn	24 30	...	...	...		" 27	N, E	eP	0 5 15	...	...	3265	Slight.
	N, E	F	45	...	...	...			N, E	iS	10 16	...	...	...
" 11	N	e	4 1	...	...	...	Feeble, near.		N, E	SR ₁	11 44	...	...	...
	E	i	0 52	...	...	...			N, E	F	Masked by the following tremors.				
	E	Mn	7 29	...	...	...		" 27	N, E	e	3 48	...	...	...	Tremors.
	N	F	32	...	...	...			N	F	4 13	...	...	...
	E	F	47	...	...	...		" 27	N, E	e	5 51	...	...	...	Tremors.
" 11	E	i	23 46 9	...	...	...	Feeble, near.		N	e	59	...	...	...
	N, E	e	47 53	...	...	...			N, E	F	6 11	...	...	...
	E	F	53 16	...	...	...		" 27	N, E	e	8 10	...	...	...	Feeble, near.
	N	F	0 29	...	...	...			N, E	F	28	...	...	...
" 12	N, E	P	21 1 29	...	...	6980	Slight. Epc: 10° N., 140° E. (Manila).	" 28	N, E	i	5 52 5	...	...	...	Feeble, distant.
	N, E	iS	10 5	...	...	...			E	i	6 2 34	...	...	...
	N, E	SR ₁	14 33	...	...	...			N, E	F	7 27	...	...	...
	N, E	SR ₂	16 41	...	...	...		" 28	E	i	13 45 42	...	...	...	Slight.
	N, E	L	22	...	...	...			E	i	48 2	...	...	...
	N	Mn	34 33	15	7	...			N, E	i	53 41	...	...	...
	E	Mn	34 9	22	16	...			N, E	F	14 56	...	...	...
	N, E	F	23 55	...	...	...		" 28	N, E	e	18 38	...	...	...	Tremors.
" 17	N, E	i	22 19 28	...	...	...	Seismic activity.		N, E	F	19 8	...	...	...
" 19	N, E	iP	5 20 0	...	...	9520	Great. Epc: 9° S., 156° E. (J. S. A.). 0: 5h. 7m. 12s. G. M. T.	May. 2	N, E	e	7 26	...	...	...	Tremors.
	N, E	iS	30 34	...	...	...			N, E	F	40	...	...	...
	N, E	PS	31 20	...	...	...		" 4	N	M	18 45 15	...	...	...	Seismic activity.
	N, E	SR ₁	36 20	...	...	...			E	M	45 18	...	...	...
	E	SR ₂	39 38	...	...	...		" 5	E	e	19 55	...	...	...	Feeble.
	N, E	L	49	...	...	...			N, E	e	20 5 5	...	...	...
	N	Mn	6 1 23	19	47	...			N, E	F	20 58	...	...	...
	E	Mn	57 53	25	112	...		" 6	N, E	e	19 0 30	...	...	...	Feeble, near.
	N, E	Masked by the following					shock.								
" 19	N, E	iP	9 8 50	...	...	2535	Moderate.		E	Mn	5 18	...	...	...
	N, E	PR ₁	9 14	...	...	...	Epc: Probably Gulf of Martaban.		N	Mn	5 21	...	...	...
	N, E	iS	12 59	...	...	...			N, E	F	26	...	...	...

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
May. 8	N, E	e	2 56 0	...	...	...	Feeble seismic activity.	May. 28	N	Mn	20 19 28	18	7	...	Slight, very distant.
	N, E	e	59 32	...	...	...			E	Mn	15 28	21	13	...	
									N, E	F	Masked by microseisms.				
" 8	N, E	i	9 21 00	...	...	...	Feeble, distant.	" 30	N	e	7 15 37	...	...	...	Felt at Dhubri, Seraiganj, Jamelpur, Siliguri, Gaibandha, Berhampur, Mymensingh, Maldah and Jalpaiguri.
	N, E	i	25 18	...	...	...			N	F	8 4	...	...	...
	N, E	F	10 11	...	...	...						
" 8	N, E	e	15 30 30	...	...	...	Feeble, distant.	Jun. 3	E	M	3 38 30	...	...	...	Seismic activity.
	N, E	e	35 28	...	...	...		" 3	E	M	10 28 30	...	...	...	Seismic activity.
	N, E	F	16 11	...	...	...		" 9	N, E	e	00 7	...	...	1270	Slight. After shock of the Great shock of 27th May. Felt at Khatmandu, Darjeeling, Patna, Purnea.
" 10	E	i	6 1 30	...	...	...	Slight, distant. N-record disturbed.			S	9 7	...	...	...
	E	e	5 37	...	...	...				S*	9 43	...	...	...
		F	34	...	...	...				S	10 23	...	...	...
" 11	N, E	eP	17 39 45	...	...	9055	Slight. Epc: 4° S., 154° E. (Manila).	" 9	N	M	8 35 29	...	...	...	Feeble, near.
	N, E	eS	49 58	...	...	...			E	M	35 44	...	...	...
	E	SR ₁ (?)	55 49	...	...	...			N, E	F	Mixed up with microseisms.				
	N, E	L	18 8	...	...	...		" 9							
	N	F	19 31	...	...	...					Mixed up with microseisms.				
	E	F	41	...	...	...		" 9	N, E	P	16 42 53	...	...	3310	Slight. Epc: Near 3° S., 95° E. (Manila).
" 16	N, E	e	6 56	...	...	...	Foreshock of the following shock?		N, E	S	48 00	...	...	...
	N, E	F	Mixed up with the following shock.						N, E	SR ₁	49 37	...	...	...
" 16	N, E	P	7 11 53	...	...	3155	Moderate.		N, E	L	51 39	...	...	...
	N, E	PR ₁	13 0	...	...	...	Epc: Western China. (Manila)		N	M	57 47	15	4	...	
	N, E	IS	16 47	...	...	...			E	Mn	58 15	14	4	...	
	N, E	SR ₁	18 11	...	...	...			N	F	18 21	...	...	...
	N, E	L	21	...	...	...			E	F	Overlapping of lines.				
	N	Mn	25 15	...	...	...		" 10	N	Mn	3 11 37	...	...	...	Seismic activity.
	E	Mn	24 7	12	45	...		" 10	E	Mn	11 16	...	...	...
	N, E	F	9 21	...	...	...			E	e	3 27 30	...	...	2665	Slight. Beginning doubtful.
" 19	N, E	eP	20 59 49	...	...	6170	Slight. Epc: 1° N., 141° E. (Manila).		N, E	S	31 45	...	...	...
	N, E	S	21 7 39	...	...	...			E	SR ₁	32 45	...	...	...
	N, E	F	23 13	...	...	...			E	L	34	...	...	...
" 20	N, E	eP	3 18 15	...	...	9620	Slight. Epc: 8° S., 160° E. (J. S. A.).		E	Mn	37 17	15	28	...	
	E	PR ₁	22 0	...	...	...		" 10	N, E	F	4 44	...	...	...
	N, E	S	28 53	...	...	...			N, E	i	8 35 45	...	...	...	Slight, distant.
	N, E	PS	29 36	...	...	...			N, E	i	44 34	...	...	...	Deep focus.
	N, E	L	50	...	...	...			N, E	i	45 49	...	...	...
	E	Mn	4 7 33	16	6	...			N	F	10 58	...	...	...
	N, E	F	6 24	...	...	...			E	F	11 0	...	...	...
" 22	E	Mn	1 30 31	...	...	...	Seismic activity.	" 10	N, E	e	14 46	...	...	...	Tremors.
									N	F	15 13	...	...	...	E-congestion of lines.
" 27	N, E	iP	6 22 24	...	...	1455	Great. Epc: Bihar, 28° N., 82° E. Felt throughout Bihar including Monghyr, Bhagalpur, Muzaffarpur, Arrah, Chapra, Cawnpore, Ranchi, New Delhi, Lucknow, Patna.	" 10	N, E	e	17 11	...	...	...	Feeble.
	N, E	P*	22 58	...	...	...			N	F	18 01	...	...	...
	N, E	T	23 36	...	...	...		" 11	N, E	e	9 44 35	...	...	...	Slight, near.
	N, E	S	24 49	...	...	...			N, E	e	48 47	...	...	...
	N, E	S*	25 34	...	...	...			N, E	F	10 21	...	...	...
	N, E	S	26 19	...	...	...		" 14	N	Mn	3 14 30	...	...	...	Seismic activity
	N	Mn	28 17	9	441	...			E	Mn	15 35	...	...	...
	E	Mn	28	...	...	...						
	N, E	F	Masked by microseisms.												

TABLE D, —*contd.*

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	Δ	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	Δ	Remarks.	
1936.			H. M. S.	Sec.	μ .	Km.		1936.			H. M. S.	Sec.	μ .	Km.		
Jun. 14	N	i	17 8 51	...	...	...	Feeble, distant.		N, E	sS	12 37	...	...	...
	N	i	14 35	...	...	...			N, E	ScS	14 18	...	...	...
	N	F	18 8 ...	...	...	...			E	SR ₁	17 0	...	...	...
" 16	N	Mn	15 32 52	...	...	...	Seismic activity.		N, E	L	20 ...	...	...	...
	N	Mn	33 13	...	...	...			F	Masked by microseisms.					
" 18	N, E	eP	15 00 32	...	...	1745	Slight. Felt locally at Jalpaiguri.	Jul. 6	N, E	e	18 38 30	...	...	...	Feeble, distant.
	N, E	eS	03 35	...	...	...			E	M	57 23	...	...	...
	N, E	L	5 23	...	...	...		" 13	N, E	PR ₁	11 38 55	...	...	16145	Moderate. Epc: 23 0° S., 70° 2° W. (J. S. A.) Beginning lost due to failure of electric current.
	N	Mn	5 51	3	18	...			E	ScPc PcS	42 21	...	...	...
	N, E	F	Masked by microseisms.						E	P ScPcS	45 37	...	...	...
" 19	N, E	iP	16 39 58	...	...	2520	Slight.		E	PPS	48 13	...	...	...
	N, E	PR ₁	40 20	...	...	...			E	SR ₁	54 11	...	...	...
	N, E	iS	44 6	...	...	...			N, E	L	12 22 ...	...	...	...
	N	L	46 ...	...	...	...			N	Mn	44 30	23	104	...	
	N	Mn	50 30	10	10	...			E	Mn	32 53	23	170	...		
	N, E	F	Masked by microseisms.						N	F	16 4 ...	...	...	...
" 29	N, E	iP	14 34 04	...	...	1880	Slight. Epc: North-West Frontier. Focal depth 80 km. and $\Delta=18^\circ$ from Brunner chart. Felt locally at Lahore.	" 15	E	M	12 32 7	...	...	...	Seismic activity.
	N, E	P*	35 04	...	...	...		" 22	N, E	e	9 3 ...	...	...	...	Feeble, near. Felt locally at Jacobabad. Tremors.
	N, E	iS	37 19	...	...	...		" 23	N, E	e	7 19 ...	...	...	...
	N, E	S	39 36	...	...	...			N, E	F	8 20 ...	...	...	...
	N	Mn	41 39	7	12	...		" 26	N, E	P	7 56 52	...	...	15780	Slight.
	E	Mn	41 42	7	9	...			E	PR ₁	59 50	...	...	...
	N, E	F	15 44 ...	...	...	...			E	PR ₁	8 3 14	...	...	...
" 30	N, E	iP	15 18 22	...	...	8100	Moderate. Deep focus. Epc: 51° N., 161° E. (J. S. A.)		E	ScPc PcS	6 37	...	...	...
	N, E	PR ₁	21 1	...	...	...			N, E	P ScPcS	10 8	...	...	...
	N, E	PR ₂	22 50	...	...	...			E	PPS	12 44	...	...	...
	N, E	iS	17 53	...	...	...			E	SR ₁	19 15	...	...	...
	N, E	PS	28 26	...	...	...			N, E	L	46 ...	...	...	...
	N, E	SR ₁	33 0	...	...	...			N	Mn	9 0 23	21	13	...	
	N, E	L	42 ...	...	...	...			E	Mn	8 59 8	21	27	...	
	N	Mn	48 23	22	432	...		" 28	N, E	F	Masked by microseisms.					
	E	Mn	53 4	22	223	...	Time uncertain on account of faint trace.		N	e	5 30 ...	...	...	...	Feeble, very distant.
" 30	N, E	F	18 34 ...	...	...	...	Slight. Epc: Persia, 33° N., 59° E.		E	e	29 53	...	...	...
	N, E	iP	19 30 18	...	...	2165			N	i	39 15	...	...	...
	N, E	PR ₂	30 46	...	...	...		" 28	E	i	8 4 8	...	...	...	Feeble, distant.
	N, E	eS	33 57	...	...	...			N, E	i	13 24	...	...	...
	N, E	SR ₁	34 46	...	...	...		" 31	N	e	11 36 15	...	...	...	Seismic activity.
	N, E	L	36 ...	...	...	...			N, E	eP	6 32 0	...	...	8780	Slight. Epc: Kansu, China (Nanking).
	N	Mn	40 34	11	13	...			N, E	S	36 21	...	...	...
	E	Mn	41 13	10	12	...			N, E	SR ₁	38 12	...	...	...
	N, E	F	Masked by microseisms.						N, E	L	40 46	...	...	...
July 1	N	M	17 0 33	...	...	...	Feeble, near.		N	Mn	43 1	11	18	...	
	E	M	0 52	...	...	...			E	Mn	43 53	15	13	...	
" 4	N	i	9 7 44	...	...	...	Slight, near.		N, E	F	6 40 ...	...	...	...
	N	i	9 53	...	...	...		" 2	N	e	2 23 ...	...	...	...	Tremors.
" 5	N, E	P	19 4 37	...	...	5680	Moderate. Surface waves poor. Depth of focus about 80 Km.		N	F	43 ...	...	...	...
	N, E	pP	4 53	...	...	...							
	N, E	PR ₂	6 57	...	...	...	Epc: 4° 0' N., 124° 9' E. (J. S. A.).								
	N, E	iS	12 0	...	...	...							

TABLE D₂—contd.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Aug. 4	E	e	14 19 52	...	...	...	Slight, distant.	Aug. 23	N, E	iP	21 17 35	...	...	2810	Moderate. Epc: 5° 8' N., 95° 4' E. (J. S. A.), Off North Sumatra.
	N	e	20 ...	...	...	...			N, E	PR ₁	18 11	...	...	...
	N, E	i	24 37	...	...	...			N, E	iS	22 5	...	...	...
	N	Mn	39 32	...	...	...			N, E	SR ₁	23 13	...	...	...
	E	Mn	42 5	15	5	...			N, E	L	25 ...	...	...	...
	N, E	F	15 8 ...	...	...	...			N	Mn	27 19	17	226	...	
" 8	N	M	4 41 30	...	...	...	Seismic activity.		E	Mn	27 37	14	145	...	
	E	Mn	46 37	...	...	...			N, E	F	01 09 ...	...	...	...
" 9	E	Mn	16 39 28	...	...	...	Seismic activity.	" 24	N	e	22 46 0	...	...	...	Feeble, distant.
									N	Mn	23 10 46	...	...	...
" 13	N, E	iP	20 11 57	...	...	6010	Moderate. Epc: 8° N., 127° E. (Manila).	" 26	E	Mn	22 58 22	...	...	...	Seismic activity.
	N, E	PR ₁	13 50	...	...	...			N	Mn	23 1 14	...	...	...
	N, E	S	19 38	...	...	...		" 27	E	i	3 10 15	...	...	...	Feeble, near.
	N, E	L	27 0	...	...	...			N, E	i	13 26	...	...	...
	N	Mn	39 50	19	16	...			N	F	40 ...	...	...	...
	E	Mn	39 12	19	23	...			E	F	43 ...	...	...	...
	N	F	22 16 ...	...	...	...		" 28	N, E	e	7 2 ...	...	...	...	Seismic Activity.
" 14	N, E	e	22 44 15	...	...	...	Slight, distant.	" 29	N, E	e	12 46 23	...	...	...	Feeble. Near.
	N, E	e	51 50	...	...	...			N, E	e	50 12	...	...	...
	E	Mn	23 11 26	...	...	...		" 29	N, E	F	13 11 ...	...	...	...
	N, E	F	56 ...	...	...	...			N, E	i	22 25 59	...	...	...	Slight.
" 16	N, E	e	16 51 ...	...	...	...	Tremors.		N, E	i	29 30	...	...	...
	N, E	F	17 12 ...	...	...	...			E	Mn	32 35	15	5	...	
" 16	N, E	e	21 44 53	...	...	...	Seismic activity.	Sept. 4.	N, E	F	23 25 ...	...	...	...
	N, E	F	22 4 ...	...	...	...			N, E	eP	8 20 00	...	...	6950	Slight, Epc; Japan (Manila).
" 17	N, E	e	14 13 0	...	...	...	Slight, distant.		N, E	S	28 35	...	...	...
	N, E	e	22 45	...	...	...			N	Mn	51 43	...	...	...
	N, E	F	15 52 ...	...	...	...			E	Mn	51 35	...	...	...
" 18	N, E	e	13 23 37	...	...	...	Seismic activity.		E	F	10 21 ...	...	...	...
" 20	E	e	2 15 ...	...	...	...	Tremors.	" 6	N	F	18 ...	...	...	...
	N, E	F	51 ...	...	...	...			N, E	e	18 5 ...	...	...	...	Feeble, distant.
" 20	N	e	23 37 7	...	...	...	Feeble, near.		E	M	51 25	...	...	...
	E	i	39 57	...	...	...		" 7	N, E	F	19 32 ...	...	...	...
	N	i	40 3	...	...	...			N, E	i	2 35 18	...	...	...	Slight, near.
" 22	N, E	P	6 59 54	...	...	4865	Moderate. Epc: 22° 3' N., 121° 5' E. (J. S. A.), Formosa Island.		N, E	i	38 50	...	...	...
	N, E	S	6 31	...	...	...			N, E	L	41 ...	...	...	...
	N	SR ₁	9 43	...	...	...			N	Mn	44 15	7	6	...	
	N, E	SR ₁	10 35	...	...	...			E	Mn	42 30	8	3	...	
	N, E	L	13 ...	...	...	...			N, E	F	Masked by microseisms.				
	N	Mn	19 17	15	75	...		" 7	N	M	9 6 11	...	...	...	Seismic activity.
	E	Mn	20 37	15	56	...			E	M	4 13	...	...	...
	F		Mixed up with the following tremor.					" 8	N, E	e	8 18 34	...	...	...
" 22	N, E	e	11 24 ...	...	...	...	Tremors.		N, E	i	18 59	...	...	...
	N, E	F	56 ...	...	...	...			N, E	F	Masked by microseisms.				
" 23	N, E	e	20 51 ...	...	...	...	Feeble shock.	" 12	N, E	e	18 18 ...	...	...	...	Slight.
	N, E	i	55 12	...	...	...			N	Mn	26 10	...	...	...
	N, E	F	Mixed up with the following shock.						E	M	28 7	...	...	...
									N, E	F	46 ...	...	...	...

TABLE D₃—contd.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
			H. M. S.	Sec.	μ	Km.					H. M. S.	Sec.	μ	Km.	
1936.								1936.							
Sept. 18	N,E	e	18 49 ...	...	...	...		Oct. 5	N,E	e	6 17 23	...	...	...	Slight, distant.
	E	e	57 29	...	...	...			N,E	i	24 27	...	...	...
	N,E	e	59 ...	...	...	...			N	Mn	41 22	...	...	...
	N	M	23 12	...	...	...			E	Mn	41 30	...	...	...
	E	M	23 14	...	...	...			N	F	7 00 ...	...	...	...
	N,E	F	20 26 ...	...	...	...			E	F	7 00 ...	...	...	...
„ 19	N,E	eP	1 7 43	...	...	3145	Moderate. Epc: North Sumatra 43° N., 97° 8' E. (J. S. A.)	„ 5	E	iP	9 53 53	...	...	5810	Moderate. Epc: 3° N. 126° 4' E (J. S. A.), 0: ph. 44m 30s. G. M. T.
	N,E	PR ₁	8 33	...	...	...			N	P		...	...	...
	N,E	PR ₂	8 53	...	...	...			N,E	PR ₁	56 00	...	...	...
	N,E	PcP	11 3	...	...	...			E	PR ₂	57 7	...	...	...
	N,E	S	12 37	...	...	...			N,E	iS	10 1 25	...	...	...
	N,E	SR ₁	13 2	...	...	...			N,E	ScS	2 39	...	...	...
	N,E	L	15 ...	...	...	...			E	SR ₁	5 11	...	...	...
	N	ScS	17 26	...	...	...			E	SR ₂	6 30	...	...	...
	N	Mn	20 8	15	104	...			N,E	L	11 00	...	...	...
	E	Mn	18 56	19	165	...			N	Mn	19 30	15	14	...	
	N,E	F	5 21	...	...	...			E	Mn	16 30	23	138	...	
„ 19	N,E	eP	6 36 19	...	...	3035	Slight.		N	F	11 53	...	...	...
	N,E	PR ₁	36 59	...	...	...			E	F	13 24	...	...	...
	N,E	iS	41 5	...	...	...		„ 10	N,E	e	3 18	...	...	...	Tremors.
	N,E	SR ₁	42 31	...	...	...				F	4 15	...	...	...
	N,E	L	45 ...	...	...	...		„ 13	N,E	e	6 42	...	...	...	Tremors.
	N	Mn	55 22	14	12	...			E	F	7 39	...	...	...
	E	Mn	51 36	12	8	...			N	F	29 ...	...	...	...
„ 21	N,E	F	8 37	...	...	...		„ 14	E	e	22 33	...	...	...	Tremors.
	N,E	e	11 49	...	...	...	Slight, distant.			F	23 46	...	...	...
	E	Mn	12 7 11	...	...	...		„ 15	N,E	i	21 28 24	...	...	...	Slight, distant.
	N,E	F	47 ...	...	...	...			E	Mn	22 31 23	15	5	...	
„ 24	N,E	e	8 39	...	...	...	Slight.		E	F	23 24	...	...	...
	N,E	F	9 19	...	...	...		„ 16	N,E	iP	12 8 56	...	...	9100	Slight.
„ 25	N,E	e	13 13	...	...	...	Slight, distant.		N,E	iS	19 11	...	...	...
	N	F	14 27	...	...	...			E	PS	19 40	...	...	...
	E	F	52 ...	...	...	...		„ 19	E	IP	12 14 0	...	...	6080	Slight. Epc: Off Celebes.
Oct 3-4	N,E	iP	21 59 25	...	...	5700	Moderate. Epc: Celebes Sea. 0: 21h. 50m. 20s. G. M. T.		N	eP		...	...	...
	N,E	PcP	22 0 40	...	...	...			N,E	iS	21 45	...	...	...
	N,E	iS	6 49	...	...	...			N,E	PS	22 15	...	...	...
	N,E	PS	7 02	...	...	...			E	ScS	23 49	...	...	...
	N,E	SR ₂	11 16	...	...	...			N,E	L	30 ...	...	...	...
	N	Mn	27 32	15	10	...			N	F	14 17	...	...	...
	E	Mn	28 2	15	17	...			E	F	15 15	...	...	...
	N	F	23 56	...	...	...		„ 20	N,E	e	22 14 30	...	...	...	Slight
	E	F	00 16	...	...	...			N,E	i	15 10	...	...	...
„ 4	E	e	7 47	...	...	...	Slight, distant.		N,E	i	18 5	...	...	...
	E	Mn	8 13 27	...	...	...			N	F	45 ...	...	...	...
	E	F	42 ...	...	...	...						
„ 5	N,E	e	0 13 22	...	...	...	Slight, very distant.								
	N,E	i	0 23 0	...	...	...						
	N	Mn	1 3 18	23	9	...									
	E	Mn	2 8	19	11	...									

TABLE D₂—contd.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
			H. M. S.	Sec.	μ	Km.					H. M. S.	Sec.	μ	Km.	
1936.								1936.							
Oct. 21	E	i	1 7 24	...	...	...	Slight.	Nov. 2	N,E	iP	15 9 4	...	...	7690	Moderate.
	E	i	2 4 8	...	...	...			N,E	PcP	9 20	...	...	...	Epc: 48° 50' N.
	E	F	30 ...	...	...	...			N,E	iS	18 14	...	...	...	E: Near Islands.
„ 21	N,E	e	5 32 45	...	...	...	Feeble, distant.		N,E	SR ₁	23 22	...	...	...	O: 14h. 58m. M. T.
	N,E	F	6 26 ...	...	...	...			N,E	L	32 ...	...	...	...
„ 22	N,E	e	10 20 ...	...	...	...	Tremors.		N	Mn	41 33	16	40	...	
	N,E	F	40 ...	...	...	...			E	Mn	41 54	15	54	...	
„ 22	N,E	e	22 5 45	...	...	...	Tremors.		N	F	18 32 ...	...	...	...
	F		23 9 ...	...	...	...			E	F	59 ...	...	...	...
„ 23	N,E	e	0 20 ...	...	...	...	Tremors.	„ 2	N,E	iP	20 56 19	...	...	6710	Moderate,
	N,E	F	1 3 ...	...	...	...			N,E	PcP	57 7	...	...	...	Epc: 41° N.
„ 23	E	eP	6 37 27	...	...	10220	Moderate, N-Boom was not free.		N,E	S	21 4 40	...	...	...	Destructive Jama, Japa Kew Δ = 83
	PR ₁		41 13	...	...	...	Epc: 60° 8' N., 149° 4' W. (J. S. A.)		N,E	PS	5 6	...	...	...	O: 20h. 46 m. G. M. T.
	e		45 4	...	...	...	Alaska.		N,E	ScS	6 4	...	...	...
	ScPcS		48 0	...	...	...	O: 6h. 24m. 24s. G. M. T.		N,E	SR ₁	8 52	...	...	...
	PPS		50 21	...	...	...			N,E	L	16 ...	...	...	...
	SR ₁		55 07	...	...	...			N	Mn	23 16	21	131	...	
	L		7 8 0	...	...	...			E	Mn	23 46	23	907	...	
	Mn		15 58	21	31	...			N	F	0 37 ...	...	...	...
	F		10 13 ...	...	...	...			E	F	1 00 ...	...	...	...
„ 25	N,E	e	15 40 30	...	...	...	Seismic activity.	„ 3	N,E	e	5 2 ...	...	...	...	Feeble.
	N,E	i	48 42	...	...	...			E	M	25 34	...	...	...
„ 26	N,E	P	19 38 35	...	...	3500	Moderate, Epc: West of Malay Peninsula.	„ 4	N,E	F	50 ...	...	...	...	Feeble.
	iS		43 51	...	...	...	O: 19h. 32m. 18s. G. M. T.		N,E	e	7 29 ...	...	...	...
	SR ₁		45 22	...	...	...			N,E	e	36 ...	...	...	...
	L		48 ...	...	...	...		„ 4	E	M	46 44	...	...	...
	N	Mn	53 29	14	16	...			N,E	F	8 35 ...	...	...	...	Feeble.
	E	Mn	52 44	15	17	...			E	M	33 28	...	...	...
	N,E		Mixed up with microseisms.					„ 4	N,E	F	50 ...	...	...	...	Feeble.
„ 26	N,E	e	23 17 ...	...	...	...	Slight, distant.		N,E	e	13 55 ...	...	...	...	Feeble.
	N,E	e	26 ...	...	...	...		„ 5	N,E	e	14 25 ...	...	...	...	Feeble.
„ 29	N,E	eP	18 50 0	...	...	7500	Slight.		N,E	e	23 38 ...	...	...	...	Feeble.
	PR ₁		52 11	...	...	...	Epc: 13° 5' N., 145° E. Damage in Guam.		N,E	F	40 ...	...	...	...
	S		59 2	...	...	...	O: 18h. 39m. 8s. G. M. T.	„ 9	N,E	e	48 ...	...	...	...
	ScS		59 53	...	...	...			N,E	F	14 10 ...	...	...	...	Feeble.
	SR ₁		19 3 16	...	...	...			N,E	F	55 ...	...	...	...
	Mn		20 24	15	8	...		„ 10	N	M	13 30 43	...	...	...	Seismic activity.
	F		21 38 ...	...	...	...			E	M	31 15	...	...	...
	F		53 ...	...	...	...		„ 10	N,E	M	17 49 30	...	...	...	Seismic activity.
„ 30	N,E	e	14 27 20	...	...	...	Seismic activity.	„ 10	N,E	e	17 57 ...	...	...	...
				...	...	...			N,E	e	18 1 ...	...	...	...
„ 31	N	M	16 10 37	...	...	...	Seismic activity.		N,E	F	Masked by microseisms.				
	E	M	16 8 37	...	...	...		„ 11	N	M	1 28 36	...	...	...	Seismic activity.
Nov. 1	N,E	e	17 20 ...	...	...	...	Feeble.		E	M	28 27	...	...	...
	N,E	F	18 8 ...	...	...	...		„ 11	N,E	e	4 50 ..	...	...	...	Feeble.
				...	...	...			N,E	F	Masked by microseisms.				

TABLE D₁—cont'd.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
			H. M. S.	Sec.	μ	Km.					H. M. S.	Sec.	μ	Km.	
1936.								1936							
Nov. 11	N,E	e	17 19 ...	...	...	...	Feeble.	Nov. 23	N,E	eP	1 34 5	...	...	1710	Slight. Epc: 28° 5' N., 85° E. North of Nepal. O: 1h. 30m. 23s. G. M. T.
	N	M	23 51 ...	...	...	...			N,E	eS	37 5	...	...	...
	E	M	22 44 ...	...	...	...			N,E	SR ₁	37 28	...	...	...
	N,E	P	Masked by microseisms.						N,E	L	38 ...	...	...	...
" 12	N,E	i	20 24 1	...	...	...	Feeble.		N	Mn	41 35	6	9	...	
	N,E	F	57 ...	...	...	...			E	Mn	41 28	6	8	...	
" 13	N,E	M	0 13 48	...	...	...	Seismic activity.		N,E	F	2 13 ...	...	...	...
" 13	N,E	iP	12 43 9	...	...	8370	Moderate. Epc: 56° N., 135° E. (Strasbourg). O: 12h. 31m. 20s. G.M.T.	" 24	N,E	e	13 42 ...	...	...	...	Feeble, distant.
	N,E	PR ₁	45 58	...	...	...			E	F	14 30 ...	...	...	...
	N,E	IS	52 52	...	...	...		" 29	N,E	e	4 15 ...	...	...	...	Feeble, near.
	N,E	PS	53 16	...	...	...			N,E	F	37 ...	...	...	...
	N,E	SR ₁	57 40	...	...	...		" 29	N,E	e	8 44 ..	...	...	...	Slight, distant.
	N,E	SR ₂	13 1 14	...	...	...			E	Mn	9 25 37	...	...	...
	N,E	L	8 ...	...	...	...			N,E	F	10 20 ...	...	...	...
	N	Mn	13 24	22	23	...		" 29	N,E	e	22 58 ...	...	...	...	Slight.
	E	Mn	17 28	19	31	...			N,E	F	23 43 ...	...	...	...
	N,E	F	16 23 ...	...	...	...		" 30	N	eP	23 55 32	...	...	6010	Slight. Epc: Near Celebes Islands. O: 23h. 46m. 6s. G. M. T.
" 14	N,E	e	4 34 19	...	...	...	Feeble, near.	Dec. 1	E	iP	56 42	...	...	...
	N,E	e	38 30	...	...	...			N,E	PcP	00 3 13	...	...	...
	N,E	F	5 47 ...	...	...	...			N,E	IS	5 13	...	...	...
" 14	N,E	e	14 51 ...	...	...	...	Feeble.		E	SR ₁	7 00	...	...	...
	N,E	F	15 41 ...	...	...	...			N,E	L	13 ...	...	...	...
" 14	N,E	e	19 50 ...	...	...	...	Feeble.		E	Mn	20 8	...	...	...
	N,E	F	20 38 ...	...	...	...			N,E	F	1 29 ...	...	...	...
" 15	N,E	e	22 11 ...	...	...	...	Feeble.	" 1	N	eP	6 18 0	...	...	5290	Slight. Epc: 30° 5' N, 122° E. O: 6h. 9m. 27s. G. M. T.
" 16	N,E	F	23 39 ...	...	...	...	Feeble.		N	IS	25 1	...	...	...
" 17	N,E	e	23 41 ...	...	...	...	Feeble.		N	F	7 11 ...	...	...	...
" 17	N,E	i	49 29	...	...	...		" 3	N,E	e	00 54 15	...	...	...	Seismic activity.
	N,E	F	0 10 ...	...	...	...			N	M	00 56 22	...	...	...
" 18	N,E	e	15 56 ...	...	...	...	Feeble.		E	M	56 31	...	...	...
	N,E	F	16 49 ...	...	...	...		" 3	E	e	20 12 ...	...	...	...	Feeble.
" 19	N	P ₁	21 50 0	...	...	16020	Slight. Epc: 14° N., 91° W. (U. S. C. G. S.).		N	e	13 ...	...	...	...
	E	e	30 12	...	...	...			E	M	17 35	...	...	...
	N	PR ₁	33 11	...	...	...			E	F	46 ...	...	...	...
	N,E	ScPcP	33 34	...	...	...		" 4	N,E	e	22 51 ...	...	...	...	Feeble, distant.
	N,E	SR ₂	58 24	...	...	...			N,E	F	00 21 ...	...	...	...
	N	Mn	22 40 30	...	...	...		" 5	N,E	e	19 27 ...	...	...	...	Feeble, near.
	E	Mn	43 53	...	...	...			N,E	F	20 34 ...	...	...	...
	N,E	F	23 46 ...	...	...	...		" 9	N,E	e	14 54 ...	...	...	...	Tremors.
" 22	N,E	P ₁	18 38 52	...	...	16080	Slight. Epc: 14° N., 90° W., (U. S. C. G. S.). O: 18h. 19m. 17s. G. M. T.		N,E	F	15 13 ...	...	...	...
	N	PR ₁	42 7	...	...	...		" 13	N,E	P	21 41 59	...	...	7470	Slight. Epc: 10° N., 141° E., Near Caroline Islands. O: 21h. 31m. 5s. G. M. T. Hong- kong Δ = 28° 9.
	N	ScPcP	42 29	...	...	...			N,E	S	50 59	...	...	...
	E	SR ₁ (?)	19 7 15	...	...	...			N,E	F	22 47 ...	...	...	...
	E	M	49 28	...	...	...						
	E	M	52 44	...	...	...						
	N,E	F	20 48 ...	...	...	...						

TABLE D₂---concl'd.

Date.	Compt.	Phase.	G. M. T.	period.	Ampli- tude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Ampli- tude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Dec. 14	N	IP (?)	4 12 0	...	...	4810	Slight.	Dec. 26- Dec. 27	E	PR ₁	14 22	...	...	...
	E	i	13 42	...	...	...			N, E	PS	21 45	...	...	...
	N, E	IS	18 34	...	...	...			N, E	PPS	23 15	...	...	...
	E	i	22 8	...	...	...			E	SR ₁	28 30	...	...	...
	N, E	F	Obliterated by microseisms.						E	Mn	57 30	24	11	...	
" 20	N, E	P	18 36 58	...	...	4280	Slight.		N	Mn	00 1 30	19	6	...	
	N, E	PR ₁	38 35	...	...	...	Epc : South		N, E	F	Masked by following shock.				
	N, E	S	43 3	...	...	...	Sumatra.								
	N, E	SR ₁	46 4	...	...	...	O : 18h. 29m. 25s.								
	N, E	L	49 ...	...	...	...	G. M. T.	" 27	E	i	16 19 45	...	...	...	Slight, distant.
	N, E	F	19 58 ...	...	...	...			E	M	50 15	17	6	...	Preliminary por- tion mixed up with coda of earlier shock.
" 21	N, E	e	19 19 ...	...	...	...	Slight, distant.		N	M	49 50	16	5	...	
	N, E	F	21 26 ...	...	...	...			N, E	F	1 49 ...	...	...	...
" 22	E	e	8 1 2	...	...	...	Slight, near.	" 29	N, E	IP	15 0 10	...	...	9010	Slight.
	E	i	1 56	...	...	...	N-trace lost.		N, E	IS	10 21	...	...	...	Epc : 6°·5 149°E.
	E	F	11 ...	...	...	...			N, E	PS	11 13	...	...	...
" 26-	E	P ¹ (?)	23 11 0	...	...	12955	Slight. Epc : North		E	SR ₁	16 5	...	...	...
" 27	E	PR ₁	12 0	...	...	...	off New Zealand. (Chieufeng).		N, E	L	26 ...	...	...	...
									N, E	F	17 40 ...	...	...	...

K. R. RAMANATHAN,
Meteorologist, Colaba Observatory, Bombay.

STATION—ALIPORE OBSERVATORY, CALCUTTA.

Lat. 22° 32' N. Long. 88 °20' E. Height above M. S. L. 7.1 metres.

Lithologic Foundation : Alluvial.

Instrument :—Milne-Shaw Seismograph East-West (E) component.

INSTRUMENTAL CONSTANTS.

Compt.	Steady mass (Kg.)	T. (sec.).	Vm	E	Paper speed mm./min.
E-W	0.45	12	250	20:1	8

TABLE D₃.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Jan. 2	E	e	1 15 11	...	...	...	Tremors.	Jan. 14	E	P	14 31 5	...	...	8340	Slight.
		Mn	18 48	15	1	...				PR ₁	33 59	...	...	...
		F	?	...	...	...	Lost in microseisms.			S	40 48	...	...	...
" 2	E	e	3 34 5	...	...	...	Tremors.			eL	55 20	...	...	...
" 2	E	iP	17 34 55	...	...	5570	Slight.			M	?	...	...	...
		PR ₁	37 37	...	...	...		" 14	E	P	17 54 5	...	...	9180	Slight.
		SR ₁	45 37	...	...	...				S	18 4 24	...	...	...
		L	50 19	...	...	...				L	21 11	...	...	...
		F	18 51	...	...	...				F	19 40	...	...	...
" 2	E	iP	22 39 53	...	...	2620	Moderate.	" 15	E	eP	14 56 46	...	...	9380	Slight.
		IS	44 10	...	...	...				eS	15 7 12	...	...	...
		eL	46 21	...	...	...				SR ₁	12 53	...	...	...
		Mn	56 25	13	74	...				eL	24 25	...	...	...
" 7	E	e	12 1 6	...	...	...	Tremors.	" 17	E	P	12 18 22	...	...	590	Slight.
		F	22	...	...	...				S	19 25	...	...	...
" 8	E	e	12 47 27	...	...	...	Tremors.			L	19 47	...	...	...
		F	13 15	...	...	...				Mn	21 6	7	21	...	
" 12	E	e	3 40 21	...	...	...	Tremors.	" 20	E	P	17 3 56	...	...	4850	Moderate.
		F	57	...	...	...				I	4 14	...	...	...
" 13	E	eP(?)	18 15 50	...	...	3450	Slight.			PR ₂	5 45	...	...	...
		S	21 2	...	...	...				S	10 4	...	...	...
		eL	24 50	...	...	...				L	15 32	...	...	...
		Mn	31 25	15	25	...				Mn	18 7	8	30	...	
		F	19 44	...	...	...				F	19 11	...	...	...
" 14	E	P	5 56 36	...	...	9500	Slight.	" 27	E	P	10 37 32	...	...	550	Slight.
		ScPcS	6 6 47	...	...	...				P	37 53	...	...	...
		SR ₁	12 58	...	...	...		" 27	E	P	19 35 39	...	...	2300	Slight.
		eL	25 0	...	...	...				S	39 30	...	...	...
		Mn	34 3	18	14	...				SR ₁	40 15	...	...	...

TABLE D₂—contd.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Jan. 27		L	41 15	.	...	...		Feb. 14	E	e	14 39 28	...	...	...	Tremors.
		M	44 59	7	10	...				F	45 ...	...	...	...
		F	20 23 ...	...	...	...		" 15	E	P	12 56 7	...	...	5620	Moderate.
Feb. 2	E	e	5 24 42	...	...	...	Tremors.			S	13 3 27	...	...	...
" 4	E	P	12 20 23	...	...	450	Slight.			SR ₁	8 21	...	...	...
		S	21 9	...	...	...				L	11 47	...	...	...
		L	21 29	...	...	...				Mn	17 2	16	135	...	
		F	41 ...	...	...	...				F	16 36	...	...	...
" 4	E	i	12 50 57	...	...	...	Tremors.	" 16	E	P	14 30 19	...	...	8250	Slight.
		F	13 7 ...	...	...	...				S	39 57	...	...	...
" 6	E	e	4 14 31	...	...	5090	Slight. Phases masked by microseisms.	" 17	E	e	23 28 3	...	...	...
		Mn	30 16	10	7	...				Mn	31 54	...	...	...
" 6	E	P	20 53 44	...	...	5920	Slight.			F	55 ...	...	...	...
		PR ₁	55 45	...	...	...		" 18	E	P	14 32 42	...	...	900	Slight.
		S	21 1 19	...	...	...				S	34 13	...	...	...
		L	10 18	...	...	...				L	34 54	...	...	...
		F	56 ...	...	...	...				Mn	35 32	6	61	...	
" 7	E	P	9 0 36	...	...	2140	Great.			F	15 26 ...	...	...	...
		S	4 12	...	...	...		" 20	E	e	3 44 6	...	...	...	Tremors.
		L	6 23	...	...	...		" 21	E	e	1 21 51	...	...	...	Tremors.
		Mn	9 43	8	280	...				F	2 8 ...	...	...	...
		F	11 4 ...	...	...	...		" 21	E	P	6 22 34	...	...	820	Moderate.
" 8	E	P	12 21 38	...	...	6680				S	23 58	...	...	...
		S	29 58	...	...	...				L	24 33	...	...	...
		eL	41 5	...	...	...				Mn	28 38	8	140	...	
		F	13 55 ...	...	...	...				F	7 26 ...	...	...	...
" 9	E	e	4 4 9	...	...	...	Tremors.	" 21	E	P	11 26 39	...	...	500	Slight.
		F	38 ...	...	...	...				S	27 30	...	...	...
" 10	E	eP	18 23 18	...	...	3330	Slight.			L	27 52	...	...	...
		S	28 22	...	...	...				F	51 ...	...	...	...
		L	31 54	...	...	...		" 21	E	P	17 7 34	...	...	6600	Slight.
		F	19 21 ...	...	...	...				S	15 48	...	...	...
" 10	E	e	21 4 5	...	...	...	Tremors.			L	26 23	...	...	...
		F	18 ...	...	...	...				F	18 45 ...	...	...	...
" 11	E	P	4 49 9	...	...	610	Moderate.	" 21	E	e	19 29 26	...	...	...	Tremors.
		S	50 16	...	...	...				F	47 ...	...	...	...
		L	50 36	...	...	...		" 22	E	P	15 45 56	...	...	10330	Slight.
		Mn	51 20	6	176	...				ScPcS	56 10	...	...	...
		F	5 29 ...	...	...	...				S	57 3	...	...	...
" 11	E	P	20 8 42	...	...	500	Slight.			PS	58 6	...	...	...
		P	9 0	...	...	...				SR ₁	16 3 29	...	...	...
		S	9 37	...	...	...				L	17 9	...	...	...
		L	9 56	...	...	...				M ₁	24 49	20	47	...	
		Mn	10 22	5	35	...				M ₂	29 5	20	52	...	
		F	44 ...	...	...	...				F	18 51 ...	...	...	...

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Apr. 9	E	P	16 14 32	...	...	9430	Slight.	Apr. 20	E	e	18 13 20	...	...	...	Tremors.
		S	25 2	...	...	...				Mn	33 31	10	5	...	
		SR ₁	30 48	...	...	...				F	19 01	...	...	...
		L	42 43	...	...	...						
		F	17 51	...	...	...		" 21	E	e	1 43 14	...	...	...	Tremors.
" 10	E	e	17 2 44	...	...	...	Tremors.			Mn	46 49	...	...	...
		F	49	...	...	...		" 23	E	e	23 26 34	...	...	...	Tremors.
" 10	E	eP?	20 6 3	...	...	2970	Slight.			i	35 23	...	...	...
		S	10 43	...	...	...		" 27	E	P	0 2 42	...	...	1,800	Moderate.
		SR ₁	11 56	...	...	...				PR ₁	2 57	...	...	...
		Mn	16 52	10	12	...				S	5 50	...	...	...
		F	53	...	...	...				SR ₁	6 21	...	...	...
" 11	E	P	23 45 17	...	...	3900	Slight.			L	6 59	...	...	...
		PR ₁	46 46	...	...	...				M	8 18	6	79	...	
		S	50 58	...	...	...				Mn	9 22	8	121	...	
		F	0 35	...	...	...		" 27	E	i	1 41 5	...	...	...	Tremors.
" 12	E	P	20 59 52	...	...	5410	Moderate. Epc: 10° N., 140° E. (Manila).			Mn	46 1	8	22	...	
		PR ₁	21 1 40	...	...	...		" 27	E	i	3 45 3	...	...	...	Tremors.
		S	6 59	...	...	...				Mn	48 28	6	12	...	
		SR ₁	10 17	...	...	...				F	4 4	...	...	...
		L	14 39	...	...	...		" 27	E	i	5 47 57	...	...	...	Tremors.
		Mn	18 58	13	48	...				Mn	53 5	...	...	...
		F	Lost in microseisms.							F	6 10	...	...	...
" 16	E	e	14 18 14	...	...	...	Tremors.	" 27	E	i	8 13 34	...	...	...	Tremors.
		F	45	...	...	...				F	19	...	...	...
" 16	E	e	18 11 43	...	...	...	Feeble shock.	" 28	E	e	5 51 2	...	...	...	Tremors.
		i	15 28	...	...	...				i	6 0 41	...	...	...
		F	37	...	...	...		" 28	E	P	18 44 23	...	...	5080	Probably deep focus.
" 16	E	e	20 27 54	...	...	...	Tremors.			S	51 12	...	...	...
		Mn	36 50	10	5	...		" 28	E	eP	18 30 57	...	...	1800	Slight.
		F	21 5	...	...	...				S	34 5	...	...	...
" 17	E	e	22 27 5	...	...	...	Tremors.			SR ₁	34 36	...	...	...
		i	32 5	...	...	...				L	35 14	...	...	...
		Mn	36 16	...	...	...				Mn	39 57	14	18	...	
		F	54	...	...	...				F	19 19	...	...	...
" 19	E	P	5 18 48	...	...	7970	Great. Epc: 9° S., 156° E. (J. S. A.) 0: 5h.7m. 12s. G. M. T.	" 29	E	e	18 22 5	...	...	...	Tremors.
		PR ₁	23 4	...	...	...				Mn	31 49	...	...	...
		S	28 12	...	...	...				F	53	...	...	...
		SR ₁	35 44	...	...	...		May 2	E	e	7 21 22	...	...	...	Tremors.
		L	39 0	...	...	...				Mn	23 24	...	...	...
		Mn	51 21	20	201	...				F	29	...	...	...
" 19	E	eP	9 7 7	...	...	1400	Great.	" 4	E	P(?)	18 35 7	...	...	1520	Slight.
		S	9 37	...	...	...				S	36 26	...	...	...
		L	10 23	...	...	...				S*(?)	37 16	...	...	...
		Mn	16 7	15	32	...				F	Lost in microseisms.				
		F	11 55	...	...	...						

TABLE D₃—contd.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
May 5	E	e	19 55 44	...	...	...	Tremors.	May 19	E	e	7 33 2	...	...	...	Tremor.
		i	20 2 29	...	...	...				F	Lost in microseisms.				
		F	48 ...	...	...	...		" 19	E	P	20 58 34	...	...	...	Probably deep focus Epc: 1°N. 141°E. (Manila).
" 6	E	e	19 3 32	...	...	...	Tremors.			S	21 5 16	...	...	...
		F	18 ...	...	...	...				Mn	40 24	6	27	...	
" 7	E	e	1 57 47	...	...	...	Slight.	" 20	E	F	22 13 ...	...	...	...
		Mn	6 59	4	6	...				cP	3 17 8	...	...	8080	Slight. Epc: 8°S., 100°E. (J. S. A.).
		F	Lost in microseisms.							S	26 38	...	...	...
" 8	E	e	9 19 49	...	...	...	Probably deep focus.			PS	27 12	...	...	...
		IS	23 6	...	...	...				SR ₁	32 30	...	...	...
		Mn	26 45	8	17	...				Mn	49 12	20	52	...	
		F	54 ...	...	...	...		" 22	E	e	6 52 23	...	...	...	Tremor.
" 8	E	P	15 27 55	...	...	1810	Slight.			i	57 0	...	...	...
		PR ₁	28 8	...	...	...		" 22	E	e	23 33 51	...	...	...
		S	31 4	...	...	...				F	44 39	...	...	...
		L	32 20	...	...	...		" 25	E	e	0 45 ...	...	...	...
		Mn	34 41	8	13	...				F	2 44 5	...	...	...
		F	16 6 ...	...	...	...		" 25	E	e	3 21 26	...	...	...
" 10	E	P	5 58 31	...	...	940	Slight.	" 27	E, N*	P	6 21 0	...	...	770	Great (felt locally)
		P	59 14	...	...	...			N*	S	22 20	...	...	...	Data from Omori- Ewing (N. S.) com- ponent.
		S	6 0 5	...	...	...			N*	L	22 47	...	...	...
		S*	0 35	...	...	...				M	?	...	...	...
		S	1 7	...	...	...				F	Lost in microseisms.				
		Mn	5 11	6	27	...		" 31	E, N*	P	7 9 41	...	...	340	Slight.
		F	33 ...	...	...	...			E	P	9 53	...	...	...	Data from Omori- Ewing (N. S.) com- ponent.
" 11	E	P	17 38 37	...	...	7,710	Slight Epc: 4° S. 154° E (Manila).		E, N*	S	10 22	...	...	...
		PR ₂	42 54	...	...	...			N	Mn	11 18	...	...	...
		S	47 48	...	...	...			E	F	Lost in microseisms.				
		PS	48 18	...	...	...		June 5	E	P	14 44 42	...	...	4,580	Slight.
		L	18 0 53	...	...	...				PR ₁	46 8	...	...	...
		Mn	5 54	20	25	...				S	51 4	...	...	...
" 13	E	e	0 0 13	...	...	...	Tremor.			SR ₁	53 40	...	...	...
		Mn	3 41	...	...	...				SR ₂	54 30	...	...	...
		F	Lost in microseisms.							L	57 3	...	...	...
" 16	E	e	6 48 57	...	...	...	Tremor.			M	15 0 30	14	6	...	
		i	53 14	...	...	...				F	18 ...	...	...	...
		Mn	56 25	7	8	...		" 9	E	P	0 3 53	...	...	560	Moderate.
		F	Mixed up in the following shock.							P	4 24	...	...	...
" 16	E	P	7 9 15	...	...	1850	Moderate. Epc: Western China (Manila).			S	4 56	...	...	...
		PR ₁	9 29	...	...	...				F	Lost in microseisms.				
		S	12 27	...	...	...		" 9	E	P	9 26 53	...	...	560	Slight.
		SR ₁	12 59	...	...	...				P	27 25	...	...	...
		L	13 39	...	...	...				S	27 56	...	...	...
		M	15 5 10	167	...	...				F	52 ...	...	...	...
		Mn	16 11	10	298	...									
		F	8 56	...	...	...						

TABLE D₃—*contd.*

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
June 9	E	P	16 41 55	...	...	3,170	Slight. L waves poor. Maximum movement in S phase. Deep focus. Focal depth according to Brunner's chart 300 km.	June 17	E	e	12 3 18	...	...	...	Slight, near
		sP	43 26	...	...	...				i	5 20	...	...	...
		S	46 19	...	...	...				Mn	6 29	...	...	...
		sS	48 4	...	...	...				F	18 ...	...	...	...
		F	17 58	...	...	...		" 17	E	e	14 46 56	...	...	...	Slight, near.
" 10	E	e	2 9 7	...	...	...	Slight.			Mn	48 50	...	...	...
		i	12 38	...	...	...				F	15 0 ...	...	...	...
		Mn	14 55	7	6	...		" 18	E	P	14 57 23	...	...	510	Slight
		F	Lost in microseisms.							P*	57 38	...	...	...
" 10	E	P	3 34 7	...	...	2530	Moderate.			S	58 20	...	...	...
		PR ₁	34 33	...	...	...				Mn	15 0 55	5	87	...	
		S	38 16	...	...	...				F	30 ...	...	...	...
		SR ₁	39 10	...	...	...		" 19	E	P	16 36 57	...	...	840	Slight.
		L	40 24	...	...	...				S	38 26	...	...	...
		Mn	41 24	8	71	...				S*	38 52	...	...	...
		F	Lost in microseisms.							S	39 18	...	...	...
" 10	E	P	8 34 26	...	...	7780	Slight. L waves poor. Maximum displacement in S phase. Deep focus. Focal depth according to Brunner's chart 400 km.			Mn	43 32	8	60	...	
		pP	35 50	...	...	...				F	17 26 ...	...	...	...
		PR ₁	37 46	...	...	...		" 28	E	Mn	8 43 25	...	...	...	Beginning and end masked by microseisms.
		S	43 1	...	...	...						
		sS	45 42	...	...	...		" 29	N	P	14 34 32	...	...	2170	
		F	Lost in congestion.							S	38 11	...	...	...	Moderate. Epicentre in N. W. F. Provinces near 35° N., 72° E.
" 10	E	i	9 57 57	...	...	...	Slight.			SR ₁	38 55	...	...	...
		F	Lost in microseisms.							Mn	44 8	8	45	...	
" 10	E	P	17 16 5	...	...	2530	Slight			F	Lost in microseisms.				
		S	20 14	...	...	...		" 30	N, E	P	15 17 0	...	...	6,680	Great. Epicentre near Kamchatka, 51° N., 161° E. (J.S.A.)
		SR ₁	21 8	...	...	...			N, E	S	25 20	...	...	...
		L	22 23	...	...	...			N	SR ₁	29 28	...	...	...
		M	24 13	...	...	...			E	eL	35 59	...	...	...
		Mn	26 25	8	30	...			N	M	41 00	...	...	...
		F	58 ...	...	...	...				Mn	46 15	20	397	...	
" 11	E	cP	9 48 31	...	...	2530	Slight.			F	Lost in microseisms.				
		S	52 40	...	...	...		" 30	N	eP	19 32 3	...	...	3,090	Moderate. Epicentre in Persia near 33° N., 59° E.
		SR ₁	53 33	...	...	...				S	36 53	...	...	...
		L	54 48	...	...	...				SR ₁	38 11	...	...	...
		M	56 50	...	...	...				L	39 54	...	...	...
		Mn	58 55	8	28	...				Mn	44 4	15	111	...	
		F	Lost in microseisms.							F	Lost in microseisms.				
" 14	E	e	17 15 25	...	...	...	Slight.	July 1	N	P	16 51 7	...	...	610	Slight.
		i	20 36	...	...	...				P*	51 25	...	...	...
		Mn	32 12	...	...	...				P	51 42	...	...	...
		F	Lost in microseisms.							S	52 13	...	...	...
" 16	E	P	15 30 25	...	...	1680	Slight.	" 3	N	Mn	53 35	7	17	...	
		S	33 22	...	...	...				F	Lost in microseisms.				
		SR ₁	33 50	...	...	...				e	21 26 59	...	...	...	Slight.
		Mn	35 58	9	5	...				Mn	40 29	...	...	...
		F	48 ...	...	...	...				F	Lost in microseisms.				

TABLE D₃—contd.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
			H. M. S.	Sec.	μ.	Km.					H. M. S.	Sec.	μ.	Km.	
1936.								1936.							
July 4	N	P	9 2 3	...	...	2130	Slight.	July 28	N	P	5 28 30	...	...	6170	Slight.
		PR ₁	2 22	...	...	...				S	36 46	...	...	...
		PR ₂	2 29	...	...	...				L	46 59	...	...	...
		S	5 39	...	...	...				F	Lost in microseisms				
		SR ₁	6 21	...	...	...				P (?)	10 2 20	...	...	6850	Slight.
		L	7 13	...	...	...				S	10 50	...	...	...
		M	8 47	...	...	...				L	21 55	...	...	...
		Mn	13 38	6	9	...				F	Lost in microseisms				
		F	54 ...	...	...	...				P	11 24 49	...	...	1330	Slight.
" 5	N	P	19 2 55	...	...	4330	Moderate Deep focus. Depth according to Brunner's charts about 80 km. Epc: 4° 0' N., 124° 9' E. (J. S. A.).	" 31	N	P	11 24 49	...	...	1330	Slight.
		pP	3 17	...	...	...				S	27 13	...	...	...
		PR ₁	4 55	...	...	...				SR ₁	27 36	...	...	...
		S	8 22	...	...	...				L	27 59	...	...	...
		sS	9 02	...	...	...				M	28 59	5	32	...	
		Mn	18 27	16	71	...				F	Lost in microseisms				
		F	20 40	...	...	...				P	6 28 42	...	...	2170	Epc: Kansu, China (Nanking).
" 6	N		7 9 22	...	...	...	Slight.	Aug. 1	N	S	32 21	...	...	...
		Mn	17 14	...	...	...				eL	35 ...	...	...	...
		F	Lost in microseisms.							Mn	36 9	9	67	...	
" 6	N	P	18 35 47	...	...	2,010	Slight.	" 4	N	P	14 18 37	...	...	3250	Slight.
		S	39 13	...	...	...				S	23 37	...	...	...
		SR ₁	39 53	...	...	...				SR ₁	25 3	...	...	...
		L	40 39	...	...	...				eL	27 ...	...	...	...
		M	42 17	...	...	...				M	29 33	...	...	...
		Mn	49 30	5	3	...				Mn	31 43	10	12	...	
		F	19 12	...	...	...				Lost in microseisms					
13	N	P'	11 32 37	...	...	19820	Moderate. Epc: 23° 0' S., 70° 2' W. (J. S. A.).	" 9	N	I	10 20 7	...	...	...	Feeble shock.
		P'	34 24	...	...	...				Mn	31 43	10	12	...	
		ScPcP	36 12	...	...	...				F	Lost in microseisms				
		PR ₁	38 14	...	...	...				e	2 58 51	...	...	...	Slight, near.
		Mn	13 56 1	20	227	...		" 12	N	I	3 0 49	...	...	...
		F	16 0	...	...	...				F	11 ...	...	...	...
" 21	N	e	0 5 29	...	...	...	Slight, near.	" 13	N	P	20 10 12	...	...	4310	Slight. Epc: 8° N., 127° E. (Manila).
		Mn	16 49	...	...	...				PR ₁	11 57	...	...	...
		F	Lost in microseisms.							S	16 19	...	...	...
" 22	N	P	9 4 23	...	...	1330	Slight.	" 14	N	SR ₁	19 22	...	...	...
		S	6 47	...	...	...				Mn	31 42	15	30	...	
		L	7 25	...	...	...				F	21 43	...	...	...
		Mh	8 25	5	16	...				e	22 43 25	...	...	...	Tremors.
		F	25 ...	...	...	...				P	23 48	...	...	...
" 23	N	e	7 32 41	...	...	...	Slight, near.	16	N	e	8 21 29	...	...	...	Tremors.
		F	Lost in microseisms.							F	Lost in microseisms				
" 26½	N	P'	7 58 8	...	...	19000	Slight.	16	N	e	16 57 6	...	...	...	Tremors.
		PR ₁	8 1 51	...	...	...	Epc: 22° 58', 70° 5' W (J. S. A.)			F	Lost in microseisms				
		L	50 39	...	...	...				e	16 57 6	...	...	...
		M	59 13	...	...	...				F	Lost in microseisms				
		Mn	9 7 33	15	18	...				F	Lost in microseisms				
		F	Lost in microseisms							F	Lost in microseisms				

TABLE D₃—*contd.*

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G.M.T.	Period.	Amplitude.	△	Remarks.
			H. M. S.	Sec.	μ	Km.					H. M. S.	Sec.	μ	Km.	
1936.								1936.							
Aug. 18	N	P	13 16 21	...	...	1690	Slight.	Sept. 8	N	eP	8 12 22	...	...	530	Slight.
		S	19 19	...	...	...				P	12 46	...	...	...
		SR ₁	19 47	...	...	...				S	13 16	...	...	...
		L	20 23	...	...	...				S	13 39	...	...	...
		Mn	23 2	5	8	...				F	23 ...	...	...	...
		F	Lost in microseisms					" 8	N	e	21 50 35	...	...	...	Tremors.
										F	Lost in microseisms.				
" 20	N	P	2 22 17	...	...	2180	Slight.	" 12	N	e	18 10 38	...	...	...	Slight, near.
		PR ₂	22 44	...	...	...				i	12 15	...	...	...
		S	25 57	...	...	...				M	17 40	...	...	...
		i	26 49	...	...	...				Mn	19 18	10	12	...	
		L	27 48	...	...	...				F	57 ...	...	...	...
		Mn	29 34	10	5	...		" 18	N	e	18 49 47	...	...	...	Slight, near.
		F	Lost in microseisms							i	53 31	...	...	...
" 20	N	i	23 40 48	...	...	...	Tremors.			Mn	19 7 31	8	9	...	
		F	Lost in microseisms							F	20 57 ...	...	...	...
" 22	N	P	6 58 1	...	...	3170	Moderate.	" 19	N, E*	P	1 6 27	...	...	2280	Great.
		PeP	7 1 12	...	...	...	Epc: 22° 3' N., 121° 5' E.			E*	PR ₂	6 56	...	...	Epc: North Sumatra,
		S	2 56	...	...	...	(J. S. A.)			E*	S	10 15	...	...	4° 3' N., 97° 8' E.
		F	Lost in microseisms				Formosa Island.			L*	F	2 44 ...	...	...	(J. S. A.).
" 23	N	e	19 49 17	...	...	...	Tremors.						...	...	*Data from Omori-
		F	Lost in microseisms					" 19	N, E*	P	6 35 10	...	...	2270	Slight.
" 23	N	e	20 54 8	...	...	...	Tremors.			E*	S	38 57	...	...	*Data from Omori-
		F	Lost in microseisms							E*	F	7 45 ...	...	...	Ewing (E-W) Com-
" 23	N, E*	P	21 16 26	...	...	1950	Great.	" 24	N	e	20 58 42	...	...	...	Slight, near.
	E	S	19 54	...	...	...	Epc: Near North			i	59 47	...	...	...
	E	L	21 16	...	...	...	Sumatra, 5° 8' N.,			F	21 32 ...	...	...	...
							95° 4' E. (J. S. A.)								
							Data from Omori-								
							Ewing (E-W)								
" 24	N	i	22 45	2	...	...	Tremors.	" 25	N	e	13 18 45	...	...	...	Slight, very distant.
		Mn	23 17 10	15	7	...				i	27 39	...	...	...
		F	Lost in microseisms							i	28 10	...	...	...
" 27	N	e	3 9 37	...	...	...	Tremors.			e	39 28	...	...	...
		F	Lost in microseisms							M	43 35	...	...	...
" 29	N	i	12 50 32	...	...	...	Slight.	Oct. 4	N	e	21 58 57	...	...	...	Slight, distant.
		i	52 52	...	...	...				i	22 4 7	...	...	...
		L (?)	53 46	...	...	...				F	Masked by microseisms.				
		F	Lost in microseisms					" 5	E	P	9 52 21	...	...	4560	Moderate:
Sept. 4	N	e	8 23 55	...	...	...	Tremors.			PR ₂	54 20	...	...	...	Epc: 3° N. 126° 4' E.
		Mn	43 9 16	20	...	...				S	58 41	...	...	...	(J. S. A.), O: 9h.
		F	Lost in microseism							SR ₂	10 2 5	...	...	...	44m. 38s. G. M. T.
" 7	N	P	2 34 26	...	...	680	Slight.			L	4 38	...	...	...	Data from Omori-
		S	35 35	...	...	...				M	7 50	...	...	...	Ewing (E-W) com-
		cL	36 ...	...	...	...				Mn	13 43	16	448	...	ponent.
		Mn	38 59	5	18	...				F	10 50 ...	...	...	...
		F	3 10 ...	...	...	...		" 10	N	e	3 22 7	...	...	...	Slight.
										F	4 26 ...	...	...	...

TABLE D₃—contd.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km		
Oct. 13	N	e	6 44 13	...	...	...	Slight.	Oct. 30	N	e	14 18 23	...	...	...	Tremors.
		e	50 12	...	...	...			F	43	...	...	...
		F	7 32	...	...	...							
" 18	N	e	16 44 26	...	...	...	Slight, near.	Nov. 1	N	e	3 3 16	...	...	...	Slight, very near.
		i	52 3	...	...	...			i	3 51	...	...	...
		M	4 8	6	6	...			F	19	...	...	...
" 19	N	P	12 12 36	...	...	...	Slight, distant.	" 2	E	P	15 7 43	...	...	6250	Slight.
		i	16 15	...	...	...			S	15 38	...	...	...		Epc: 48°5'N., 49°5'E.
		F	14 19	...	...	...			L	25 7	...	...	...		near Kurile Islands.
" 20	N	i	22 16 35	...	...	...			F	16 16	...	...	...		O: 14h. 58m. 2s.
		e	18 7	...	...	...									G.M.T. Data from
		F	Lost in microseisms.												Omori-Ewing (E-W)	
" 21	N	e	5 33 34	...	...	...	Slight.	" 2	E	P	20 54 44	...	...	5130	Moderate. Epc:
		i	37 18	...	...	...			S	21 1 36	...	...	...		41°N., 139°E. Des-
		i	39 16	...	...	...			L	9 11	...	...	...		tructive in Fuku-
		F	Lost in microseisms.						M ₁	15 55	26	638	...		jima, Japan-KoW	
" 22	N	e	22 4 25	...	...	...	Slight.		Mn	17 34	20	741	...		Δ-83°5.0': 10 h.
		e	8 17	...	...	...			F	Lost in congestion of lines.					46m-11s. G.M.T.
		F	Lost in microseisms.					" 3	N	e	5 1 12	...	...	...	Data from
" 23	N	e	0 6 14	...	...	...	Tremors.		F	Lost in congestion of lines.					Omori-Ewing
		F	Lost in microseisms.					" 9	N	e	14 17 17	...	...	...	(E-W) component.
" 23	N	P	6 36 59	...	...	9070	Moderate.		i	22 47	...	...	...
		PR ₁	40 7	...	...	...	Epc: 60°8'N., 149°4'		F	49	...	...	...
		S	47 13	...	...	...	W. (J. S. A.),	" 10	N	e	13 19 12	...	...	...	Tremors.
		PS	47 58	...	...	...	Alaska.		i	22 27	...	...	...
		L	7 3 50	...	...	...	O: 6h. 24m. 24s.		F	40	...	...	...
		Mn	12 9 18	10	...	...	G.M.T.	" 10	N	e	18 6 14	...	...	...	Tremors.
		F	10 2	...	...	...			i	8 39	...	...	...
" 24	N	e	16 18 13	...	...	...	Tremors.	" 11	N	e	17 15 38	...	...	...	Slight.
		F	17 2	...	...	...			i	19 12	...	...	...
" 25	N	e	15 41 7	...	...	...	Tremors.		F	Lost in microseisms.					
		F	16 16	...	...	...		" 12	N	i	2 32 49	...	...	...	Seismic activity.
" 26	N	P	19 37 29	...	...	2650	Moderate.	" 12	N	e	8 40 45	...	...	...	Slight; phases lost
		PR ₁	37 58	...	...	...	Epc: West of Malay		i	20 21 17	...	...	...		in microseisms and
		S	41 47	Peninsula.	" 12	N	i	22 22		congestion of lines.
		SR ₁	42 45	...	...	...	O: 19h. 32m. 18s.		M	23 35	...	...	...
		eL	44 5	...	...	...	G.M.T.	" 13	N	S	0 3 5	...	...	2870	Slight.
		Mn	54 34	10	50	...			eL	5 39	...	...	...
		F	21 45	...	...	...		" 13	M	7 52	...	...	...
" 26	N	e	23 17 6	...	...	...	Slight.		P	12 42 1	...	...	7180	Great.	
		e	26 16	...	...	...			PR ₂	45 47	...	...	...		Epc: 56°N., 165°E.
		Mn	0 12 51	10	5	...			S	50 48	...	...	...		(Strasbourg).
		F	Lost in microseisms.						SR ₂	57 34	...	...	...		O: 12h. 31m. 29s.
" 29	N	P	18 48 25	...	...	5,900	Moderate.		L	13 2 37	...	...	...		G.M.T.
		PR ₁	50 10	...	...	...	Epc: 13°5'N., 145°E.		M	8 25	15	...	...	
		S	56 0	...	...	...	Damaged in Guam.		Mn	?	...	...	...
		Mn	19 12 27	10	17	...	O: 18h. 39m. 8s.		F	17 7	...	...	...
		F	20 57	...	...	...	G.M.T.								

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Nov. 14	N	e	1 21 22	...	...	...	Slight, near.	Nov. 24	N	e	13 56 32	...	...	...	Slight, near.
		M	27 56	...	...	...				i	58 14	...	...	...
		F	Lost in microseisms.							i	14 0 31	...	...	...
" 14	N	e	4 30 43	...	...	...	Slight, near.			F	27 ...	...	...	...
		i	38 16	...	...	...		" 24	N	e	22 58 31	...	...	...	Tremors.
		M	47 46	...	...	...				F	23 15 ...	...	...	...
		F	Lost in microseisms.					" 25	N	e	11 53 20	...	...	...	Slight, near.
" 14	N	e	10 1 23	...	...	...	Slight, near.			i	12 0 17	...	...	...
		M	7 16	...	...	...				Mn	17 39	...	...	...
		F	Lost in microseisms.							F	37 ...	...	...	...
" 14	N	e	14 49 23	...	...	...	Slight, near.	" 29	N	e	4 15 58	...	...	...	Slight, near.
		i	15 7 16	...	...	...				i	21 5	...	...	...
		F	49 ...	...	...	...				F	43 ...	...	...	...
" 14	N	e	19 47 24	...	...	...	Slight, near.	" 29	N	e	8 44 7	...	...	...	Slight, near.
		i	20 3 23	...	...	...				i	50 5	...	...	...
		M	6 6	...	...	...				F	Lost in congestion of lines.				
		F	49 ...	...	...	...		" 29	N	e	23 0 1	...	...	...	Slight.
" 15	N	i	22 13 55	...	...	...	Tremors.			i	4 16	...	...	...
		i	16 50	...	...	...				i	5 42	...	...	...
		i	25 13	...	...	...				e	7 36	...	...	...
		i	39 2	...	...	...				M	9 38	...	...	...
		Mn	23 4 52	...	...	...				Mn	15 11 / 10	...	...	...
		F	56 ...	...	...	...				F	Lost in microseisms.				
" 18	N	e	16 6 16	...	...	...	Tremors.	Nov. 30 and Dec. 1	N	P	23 54 5	...	...	4650	Slight. Near Celebes Islands. O: 23 h. 46 m. 6 s. G. M. T.
		Mn	19 41	...	...	...				PR ₁	55 33	...	...	...
		F	56 ...	...	...	...				S	0 0 30	...	...	...
" 19	N	P'	21 29 55	...	...	15630	Slight. Epc: 14° N., 91° W. (U.S.C.G.S.).			SR ₁	3 6	...	...	...
		ScPc P	33 25	...	...	...				SR ₂	3 58	...	...	...
		ScPcPcS	39 27	...	...	...				L	6 20	...	...	...
		PPS	45 20	...	...	...				M	9 12	...	...	...
		SR ₂	56 35	...	...	...				Mn	13 52	...	...	...
		L	22 17 26	...	...	...				F	Lost in microseisms.				
		Mn	41 18	15	...	...		Dec. 1	N	P	6 16 5	...	...	3650	Slight. Epc: 30° 5 N., 122° E. O: 6 h. 9 m. 27 s. G. M. T.
		F	23 32 ...	...	...	...				PR ₁	17 1	...	...	...
" 22	N	P'	18 38 53	...	...	16340	Slight. Epc. 14° N., 90° W. (U. S. C. G. S.) O. 18h. 19m. 17s. G. M. T.	" 2	N	e	3 55 31	...	...	...	Slight, near.
		PR ₁	42 14	...	...	...				e	57 35	...	...	...
		PPS	55 14	...	...	...				i	58 5	...	...	...
		SR ₂	19 7 0	...	...	...				F	Lost in microseisms.				
		Mn	50 11	25	22	...		" 2	N	e	18 39 30	...	...	...	Tremors.
		F	21 59 ...	...	...	...				F	53 ...	...	...	...
" 23	N	P	1 32 24	...	...	910	Slight. Epc. 28° 5 N., 85° E. North of Nepal. O. 1h. 30m. 28s. G. M. T.	" 3	N	e	0 47 36	...	...	...
		S	33 54	...	...	...				F	Lost at the time of changing chart.				
		L	34 49	...	...	...						
		Mn	36 19	10	52	...									
		F	2 12 ...	...	...	...						

TABLE D₃—concl'd.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Dec. 3	N	e	12 26 17	...	...	...	Slight, near.	Dec. 20	N	P	18 36 4	...	...	3,400	Slight.
		i	27 1	...	...	...				S	41 14	...	...	...	Epc : South Sumatra,
		F	32 ...	...	...	...				eL	44 43	...	...	...	O : 18h. 29m. 35s. G.
										F	Lost in microseisms				M. T.
3	E	e	20 15 35	...	...	...	Slight, near.	" 21	N	e	19 20 38	...	...	...	Tremors.
		i	20 6	...	...	...				i	27 29	...	...	...
		F	38 ...	...	...	...				Mn	20 3 36	...	...	...
" 4	N	e	22 40 46	...	...	...	Tremors.	" 22	N	F	Lost in microseisms				
		i	50 27	...	...	...				e	8 4 5	...	...	...	Slight, near.
		F	Lost in microseisms.							i	5 6	...	...	...
" 7	N	i	6 22 48	...	...	...	Slight, near.	" 22	N	F	9 ...	...	...	...
		F	Lost in microseisms.							e	8 46 44	...	...	...	Tremors.
" 7	N	e	16 42 33	...	...	...	Slight, near.	" 23	N	i	50 12	...	...	...
		i	46 25	...	...	...				F	9 1 ...	...	...	...
		F	50 ...	...	...	...				e	4 23 43	...	...	...	Slight, near.
" 7	N	e	21 47 36	...	...	...	Slight, near	" 24	N	i	24 35	...	...	...
		i	49 44	...	...	...				F	33 ...	...	...	...
		F	22 2 ...	...	...	...				e	19 39 48	...	...	...	Tremors.
" 9	N	eP (?)	14 56 49	...	...	1060	Slight.	" 27	N	i	48 21	...	...	...
		Sn	53 20	...	...	...				F	20 14 ...	...	...	...	Tremors.
		S*	58 49	...	...	...				M	2 29 19	...	...	...
		Sg	59 24	...	...	...		" 27	N	F	40 52	...	...	...
		F	15 19 ...	...	...	...				F	3 2 ...	...	...	...	Tremors.
" 13	N	e	16 19 35	...	...	...	Tremors.	" 27	N	M	14 2 57	...	...	...
		F	52 ...	...	...	...				F	11 59	...	...	...
" 13	N	e	21 39 49	...	...	5900	Slight.	" 27	N	i	26 ...	...	...	...
		eP ?	40 19	...	...	...	Epc. 10° N., 141° E.	" 27	N	i	16 11 40	...	...	...
		S	47 54	...	...	...	Near Caroline Islands.			F	13 45	...	...	...
		SR ₁	52 2	...	...	...	O : 21h. 31m. 5s. G.	" 28	N	e	51 ...	...	...	...	Slight, very near.
		SR ₂	53 59	...	...	...	M. T.	" 29	N	M	23 1 33	...	...	...
		eL	58 10	...	...	...				F	2 13	...	...	...
		F	23 18 ...	...	...	...				F	2 23	...	...	...
" 14	N	e	4 9 25	...	...	3850	Slight.	" 28	N	e	12 ...	...	...	...	Tremors.
		S	15 3	...	...	...		" 29	N	F	17 48 8	...	...	...
		L	19 26	...	...	...				P	18 27 ...	...	...	...
		M	22 44	...	...	...				PR ²	14 59 0	...	...	7770	Moderate.
		Mn	25 2	...	...	...				S	15 3 7	...	...	...	Epc : 6° 58', 149° E.
		F	5 30 ...	...	...	...				PS	8 14	...	...	...
" 18	N	e	15 29 57	...	...	...	Slight, near.	" 30	N	SR ₂	8 47	...	...	...
		i	33 20	...	...	...				eL	15 35	...	...	...
		F	45 ...	...	...	...				F	21 27	...	...	...
										e	18 11 ...	...	...	...	Tremors.
										M	4 23 20	...	...	...
										F	33 4	...	...	...
											5 4 ...	...	...	...

S. C. Roy,

Meteorologist, Alipore Observatory, Calcutta.

STATION—SOLAR PHYSICS OBSERVATORY, KODAIKANAL.

Lat. 10° 13' 50"N., *Long.* 77° 28' 00"E.

Height above M. S. L. 2,343 m. *Lithologic Foundation* : Rock.

Instruments : Milne-Shaw Seismograph East-West (E) Component.

INSTRUMENTAL CONSTANTS.

Component.	Steady mass. (Kg.)	T. (sec.).	Vm	ε	Paper speed (mm/min.)
E-W	0.45	11.5	250	20 : 1	8

TABLE D. 4.

Date.	Compt.	Phase.	G. M. T	Period.	Amplitude.	Δ	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	Δ	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Jan. 2	E	e	0 59 ...	...	...	...	Tremors.	Jan. 14	E	e	17 54 ...	...	...	...	Distant.
" 3	E	F	1 53 ...	...	...	...		" 15	E	F	19 17 ...	...	...	...
" 3	E	iP	22 39 37	...	...	2,645		" 18	E	P	14 55 33	...	...	...	Slight. Phases no clear.
" 3	E	iS	43 55	...	...	...		" 24	E	F	16 8 ...	...	...	...	Slight. Lines overlapping. Tremors.
" 3	E	SR ₁	45 2	...	...	...		" 27	E	e	(?)	...	...	...
" 3	E	L	46 20	...	...	...		" 27	E	eP	16 53 ...	...	...	...
" 3	E	Mn ?	48 30	17	184	...		" 27	E	F	17 15 ...	...	...	...
" 3	E	e	6 31 ...	...	...	...	Tremors.	" 27	E	F	20 2 52	...	...	...	Feeble.
" 3	E	F	33 ...	...	...	...		" 27	E	F	28 ...	...	...	...
" 4	E	e	4 20 ...	...	...	...	Tremors.	Feb. 4	E	eP	12 23 00	...	...	1060	Feeble.
" 4	E	F	5 5 ...	...	...	...		" 4	E	iS	24 52	...	...	...
" 4	E	e	6 8 ...	...	...	...	Tremours.	" 4	E	Mn	26 41	4	3	...	
" 4	E	F	44 ...	...	...	...		" 4	E	F	13 09 ...	...	...	...
" 7	E	e	2 49 ...	...	...	...	Tremors.	" 6	E	iP	4 09 41	...	...	2620	
" 7	E	F	? ...	...	...	...	Lines overlapping.	" 6	E	iS	13 57	...	...	...
" 7	E	F	? ...	...	...	...	Lines overlapping.	" 6	E	ISR ₁	14 56	...	...	...
" 8	E	c	11 7 ...	...	...	...	Tremors.	" 6	E	iL	15 56	...	...	...
" 8	E	F	30 ...	...	...	...	Lines overlapping.	" 6	E	F	5 58 ...	...	...	...
" 9	E	F	? ...	...	...	...	Lines overlapping.	" 7	E	iP	9 03 20	...	...	3505	
" 10	E	e	21 52 ...	...	...	...	Lines overlapping.	" 7	E	PR ₁	04 13	...	...	...
" 10	E	F	22 8 ...	...	...	...		" 7	E	PR ₂	04 35	...	...	...
" 13	E	eP	18 13 54	...	...	1855		" 7	E	iS	08 42	...	...	...
" 13	E	iS	17 7	...	...	...		" 7	E	SR ₁	10 34	...	...	...
" 13	E	L	18 11	...	...	...		" 7	E	L	12 35	...	...	...
" 13	E	Mn	19 40	11	15	...		" 7	E	Mn	22 02	18	27	...	
" 14	E	e	5 54 ...	...	...	...	Distant	" 8	E	F	10 47 ...	...	...	...
" 14	E	F	7 49 ...	...	...	...		" 8	E	iP	12 22 21	...	...	7530	
" 14	E	e	14 30 ...	...	...	...	Distant.	" 8	E	iS	31 24	...	...	...
" 14	E	F	15 56 ...	...	...	...		" 8	E	PS	31 50	...	...	...
" 14	E	F	15 56 ...	...	...	...		" 8	E	F	13 30 ...	...	...	...

TABLE D₄--*contd.*

Date.	Compt.	Phase.	G. M. T.	Period.	Ampli- tude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Ampli- tude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Feb. 11	E	eP	4 51 12	...	...	2590		Mar. 1	E	eP	10 32 15	...	...	6870	Epc: South of Sakhalin Island. (Chiufeng).
		iS	55 25	...	...	...				ePR ₁	35 00	...	...	...
		iSR ₁	56 10	...	...	...			E	S	40 45	...	...	...
		iL	57 18	...	...	...				i	41 41	...	...	...
		Mn	57 50	5	9	...				iSR ₁	45 26	...	...	...
		F	5 34	...	...	...				iL	52 40	...	...	...
" 11	F	e	20 12 08	...	...	...	Feeble.			Mn	56 27	21	13	...	
		F	28	...	...	...				F	12 46	...	...	...
" 15	E	e	11 40	...	...	...	Tremors.	" 2	E	iP	3 29 53	...	...	7395	Epc: East off Hokkaido, Japan.
		F	12 03	...	...	...				iPR ₁	32 20	...	...	...
" 15	E	iP	12 56 48	...	...	6215				S	38 50	...	...	...
		iS	13 04 41	...	...	...				iSR ₁	43 2	...	...	...
		PS	05 13	...	...	...				L	51 00	...	...	...
		SR ₁	08 36	...	...	...				Mn	4 3 17	19	8	...	
		SR ₂	10 31	...	...	...				F	5 05	...	...	...
		L	14 20	...	...	...		" 17	E	eP	19 54 30	...	...	2565	Epc: North Sumatra. (Batavia).
		Mn	19 53	24	66	...				iS	58 41	...	...	...
		F	16 09	...	...	...				L	20 00 37	...	...	...
" 18	F	(?)	...	...	...	...	Slight. Lines over- lapping; times not readable.			Mn	02 42	19	5	...	
" 21	E	e	6 26	...	...	...	Distant, feeble.	" 18	E	e	3 13	...	...	...	Tremors.
		F	7 24	...	...	...				F	3 27	...	...	...
" 21	E	(?)	...	...	...	...	Feeble. Lines over- lapping, times not readable.	" 18	E	e	12 00 48	...	...	...	Tremors.
" 22	E	eP	15 45 28	...	...	9645				F	12 25	...	...	...
		iS	56 07	...	...	...		" 18	E	iP	22 28 21	...	...	2420	Feeble. Epc: North Sumatra. (Batavia).
		SR ₁	16 02 55	...	...	...				iS	32 21	...	...	...
		SR ₂	06 23	...	...	...				L	34 29	...	...	...
		L	16 20	...	...	...				Mn	37 03	19	2	...	
		Mn	20 58	23	22	...		" 21	F	F	23 03	...	...	...
		F	(?)	...	...	...	Not readable, lines overlapping.			eP	1 58 17	...	...	3090	
" 22	E	(?)	...	...	...	...	Lines overlapping.			eS	2 03 07	...	...	...
" 24	E	e	5 48	...	...	...				iL	05 50	...	...	...
		F	6 12	...	...	...				Mn	07 53	11	12	...	
" 26	E	(?)	...	...	...	...	Lines overlapping, times not read- able.	" 22	E	F	3 16	...	...	...
" 27	E	iP	10 13 10	...	...	5540				iP	12 28 24	...	...	8985	
		iS	20 25	...	...	...				iS	38 34	...	...	...
		L	27 46	...	...	...				SR ₁	44 05	...	...	...
		Mn	35 44	20	8	...		April 1	E	SR ₂	47 24	...	...	...
		F	11 43	...	...	...				Mn	...	...	...	...
" 28	E	eP	16 23 00	...	...	4235				F	13 59 00	...	...	...
		iS	29 02	...	...	...				Earthquake shock of great intensity— Record went out of the sheet.					
		SR ₁	32 06	...	...	...		" 1	E	F	6 54	...	...	...
		SR ₂	32 56	...	...	...				eP	20 19 45	...	...	5180	Preceded by a tremor. Aftershock of the great shock of April 1.
		L	35 00	...	...	...				iS	26 40	...	...	...
		Mn	30 11	16	7	...				iPS	27 20	...	...	...
		F	(?)	...	...	...	Lines overlapping.			iSR ₁	29 38	...	...	...
										L	39 40	...	...	...
										Mn	44 25	17	18	...	
										F	22 42	...	...	...

TABLE D₄—contd.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
April 2	E	iP	7 28 35	...	...	...	Long, distant.	May 8	E	eP	9 18 12	...	...	...	Slight, distant.
		F	10 25 ...	...	...	...	Phases not clear.			F	9 58 ...	...	...	...
" 5	E		?	...	...	...	Tremors. No time marks.	" 12	E			...	...	...	Lines overlapping.
" 6	E		?	...	...	...	Tremors. No time marks.	" 16	E	iP	7 12 05	...	...	4185	
" 9	E	eP	16 15 11	...	...	...	Tremors.			PR ₁	7 12 46	...	...	...
		F	17 40 ...	...	...	...				PR ₂	7 13 03	...	...	...
" 10-11	E			...	...	...	Tremors. Lines lost. Times not readable.			S	7 17 04	...	...	...
" 11	E	e	4 01 38	...	...	...	Tremors.	" 19	E	eP	6 33 ...	...	...	...	Tremors.
		F	43 ...	...	...	...				F	6 53 ...	...	...	...
" 11				...	...	...	Tremors. Lines overlapping.	" 19	E	eP	20 57 14	...	...	...	Distant. F merged in another shock.
" 12	E	iP	21 1 03	...	...	6430	Epc: 10° N., 140° E. (Manila). O: 20h. 51m. 10s. G. M. T.	" 19	E	e	21 22 57	...	...	...
		iPR ₁	4 26	...	...	...		" 19	E	e	27 00	...	...	...
		iS	9 08	...	...	...				L?	29 00	...	...	...
		L	24 20	...	...	...		" 19	E	i	21 35 50	...	...	...
		Mn	29 53	17	18	...				i	39 59	...	...	...
		F	23 9 ...	...	...	...				L	42 02	...	...	...
" 19	E	iP	5 19 30	...	...	9100	Epc: 9° S., 156° E., (J. S. A.). Time marks not clear.	" 19	E	Mn	45 24	15	4	...	
		S	29 45	...	...	...				F	22 1 ...	...	...	...
		SR ₂ (?)	40 17	...	...	...		" 20	E	iP	3 17 53	...	...	9130	Epc: 8° S., 160° E. (J. S. A.)
		L	45 ...	...	...	...				PR ₁	21 03	...	...	...
" 19	E	iP	9 8 32	...	...	2365				PR ₂	23 02	...	...	...
		iS	12 27	...	...	...				iS	28 10	...	...	...
" 20	E		(?)	...	...	...	Feeble. Lines overlapping.			ePS	28 53	...	...	...
" 21	E	e	1 5 ...	...	...	...				SR ₁	32 45	...	...	...
		F	3 4 ...	...	...	...				SR ₂	36 10	...	...	...
" 21	E	e	10 48 ...	...	...	...				L	45 00	...	...	...
		F	11 12 ...	...	...	...				F	5 10 ...	...	...	...
" 23	E	e	23 27 ...	...	...	...		" 20	E	e	5 22 12	...	...	...	Tremors.
		F	0 42 ...	...	...	...				F	51 ...	...	...	...
" 24	E	e	13 7 ...	...	...	...		" 27	E	iP	6 23 34	...	...	2120	
		F	13 31 ...	...	...	...				iPR ₁	23 51	...	...	...
" 24	E		(?)	...	...	...	Feeble. No time mark.			iS	27 00	...	...	...
" 27	E	e	0 05 ...	...	...	...	Slight. Phases not clear.			iSR ₁	27 54	...	...	...
		F	1 25 ...	...	...	...				L	28 52	...	...	...
" 28	E	e	5 49 ...	...	...	...	Slight.			Mn (?)	(?)	...	40.0	...	Amplitude 40.0 mm. Period not possible to determine.
		F	7 30 ...	...	...	...				F	8 5 ...	...	...	...
" 28	E	e	13 45 ...	...	...	...	Tremors.	" 28	E	e	20 07 00	...	...	...	Tremors.
		F	14 14 ...	...	...	...				F	43 ...	...	...	...
May 3	E		(?)	...	...	...	Tremors. No time marks.	June 9	E	e	0 10 26	...	...	...
" 8	E	eP	3 02 58	...	...	...	Slight.			i	0 12 12	...	...	...
		F	3 13 ...	...	...	...				F	0 26 ...	...	...	...

TABLE D₄—contd.

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
			H. M. S.	Sec	μ	Km.					H. M. S.	Sec	μ	Km.	
1936.								1936.							
June 9	E	iP	16 41 41	...	...	2655		June 30	E	iP	15 18 39	...	...	8445	
		PR ₁	42 12	...	...	...				iPR ₁	21 29	...	...	...
		iS	46 00	...	...	...				PR ₂	23 15	...	...	...
		SR ₁	47 01	...	...	...				iS	28 26	...	...	...
		L	48 09	...	...	...				PS	29 07	...	...	...
		M	50 10	18	19	...				iSR ₁	33 35	...	...	...
		F	18 15	...	...	...				iSR ₂	36 39	...	...	...
										L	43 26	...	...	...
„ 10	E	e	3 11	...	...	...	Tremors.			Mn	56 42	19	111	...	
		F	24	...	...	...				F	18 15	...	...	...
„ 10	E	eP	3 33 44	...	...	2290		„ 30	E	e	19 35 16	...	...	...	Feeble.
		PR ₁	34 1	...	...	...				F	20 16	...	...	...
		iS	37 33	...	...	...						
		SR ₁	38 18	...	...	...		July 4	E	iP	9 2 00	...	...	2420	
		L	39 23	...	...	...				PR ₂	2 37	...	...	...
		Mn	41 50	10	19	...				iS	6 00	...	...	...
		F	4 41	...	...	...				SR ₁	6 53	...	...	...
„ 10	E	eP	8 34 26	...	...	7635				L	7 50	...	...	...
		PR ₁	37 06	...	...	...				F	45	...	...	...
		iS	43 34	...	...	...		„ 5	E	iP	19 4 2	...	...	3220	Deep focus.
		PS	44 12	...	...	...				pP	4 19	...	...	...	Epc : 4° 0 N., 124°
		SR ₁	48 22	...	...	...				PR ₁	5 44	...	...	...	E. (J. S. A.).
		SR ₂	51 02	...	...	...				iPR ₂	6 14	...	...	...
		L	56 51	...	...	...				iS	10 57	...	...	...
		Mn	9 06 07	14	10	...				SS	11 35	...	...	...
„ 10	E	e	14 49 25	...	...	...	Tremors.			SR ₂	15 24	...	...	...
		F	15 06	...	...	...				L	18 02	...	...	...
„ 10	E	eP	17 19 27	...	...	1440				Mn	19 53	15	23	...	
		eS	22 01	...	...	...		„ 6	E	e	18 37	...	...	...	Tremors.
		SR ₁	22 27	...	...	...				F	19 7	...	...	...
		L	22 54	...	...	...						
		M	23 55	11	6	...		„ 3	E	iP	11 31 54	...	...	17000	Epc : 23° 0 S., 70° 2
		F	18 03	...	...	...				PR ₁	35 38	...	...	...	W. (J. S. A.).
„ 18	E	iP	15 01 01	...	...	1920				PR ₂	38 53	...	...	...
		eS	04 20	...	...	...				ScPc Pes	42 22	...	...	...
		SR ₁	05 01	...	...	...				P ScPcS	45 40	...	...	...
		L	05 41	...	...	...				SR ₁	55 15	...	...	...
		Mn	06 46	4	4	...				Mn	25 21	27	191	...	
		F	21	...	...	...				F	14 22	...	...	...
„ 19	E	eP	16 40 05	...	...	2655		„ 26	E	e	8 48	...	...	...	Tremors.
		S	44 24	...	...	...				F	9 21	...	...	...
		F	17 13	...	...	...		„ 28	E	e	5 29	...	...	...	Tremors.
„ 29	E	eP	14 36 15	...	...	2400				F	6 37	...	...	...
		S	40 13	...	...	...		„ 28	E	e	8 12	...	...	...	Tremors.
		SR ₁	41 03	...	...	...				F	9 11	...	...	...
		L	42 06	...	...	...						
		M	44 06	6	24	...		Aug. 1	E	e	6 37	...	...	...	Feeble.
		F	15 14	...	...	...				F	7 14	...	...	...

Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
			H. M. S.	Sec.	μ	Km.					H. M. S.	Sec.	μ	Km.	
1936.								1936.							
Aug. 4	E	eP	14 17 45	...	...	4460	Epc: 19° N., 121° E. (Manila).	Aug. 29	E	e	12 52 ...	...	...	...	Tremors.
		S	24 0	...	...	...				F	13 11 ...	...	...	...
		ISR ₂	27 25	...	...	...		" 29	E	iP	22 26 38	...	...	2255	
		L	31 50	...	...	...				IS	30 24	...	...	...
		Mn	34 45	23	8	...				SR ₁	31 8	...	...	...
		F	15 0	...	...	...				L	32 0	...	...	...
" 8	E	e	4 41 ...	...	...	...	Tremors.			Mn	33 8	13	5	...	
		F	5 4 ...	...	...	...				F	23 38	...	...	...
" 13	E	e	3 1 ...	...	...	...	Tremors.	Sept. 3	E	e	12 36 ...	...	...	...	Feeble.
		F	33 ...	...	...	...				F	13 54 ...	...	...	...
" 13	E	iP	20 11 23	...	...	5165	Epc: 8° N., 127° E. (Manila).	" 4	E	e	8 20 9	...	...	...	Feeble.
		iPR ₁	13 16	...	...	...				F	9 43 ...	...	...	...
		S	18 17	...	...	...		" 6	E	e	18 4 48	...	...	...	Tremors.
		ISR ₁	22 14	...	...	...				F	19 42 ...	...	...	...
		ISR ₂	23 40	...	...	...		" 7	E	e	2 40 10	...	...	...	Feeble.
		L	26 57	...	...	...				F	3 18 ...	...	...	...
		Mn	35 30	19	15	...		" 7	E	e	12 42 ...	...	...	...	Tremors.
		F	21 19 ...	...	...	...				F	13 44 ...	...	...	...
" 14	E	e	22 43 ...	...	...	...	Tremors.	" 12	E	e	18 19 ...	...	...	...	Tremors.
		F	23 10 ...	...	...	...				F	54 ...	...	...	...
" 20	E	e	23 43 ...	...	...	...	Feeble.	" 17	E	e	17 33 28	...	...	...	Tremors.
		F	54 ...	...	...	...				F	18 32 ...	...	...	...
" 22	E	iP	6 59 40	...	...	4735	Epc: 22° 3' N., 121° 5' E. (J. S. A.). Formosa Island.	" 18	E	e	18 48 58	...	...	...	Feeble.
		IS	7 6 10	...	...	...				F	20 14 ...	...	...	...
		ISR ₁	8 55	...	...	...		" 19	E	iP	1 06 32	...	...	2355	Epc: North Sumatra, 4° 3' N., 97° 8' E. (J.S.A.).
		ISR ₂	9 55	...	...	...				IS	10 26	...	...	...
		IL	12 22	...	...	...				ISR ₁	11 13	...	...	...
		Mn	17 10	24	40	...				L	12 19	...	...	...
		F	8 47 ...	...	...	...				Mn	16 02	15	286	...	
23	E	iP	20 49 53	...	...	1865		" 19	E	iP	6 35 10	...	...	2335	
		IS	53 7	...	...	...				iPR ₁	35 30	...	...	...
		L	54 6	...	...	...				iPR ₂	35 38	...	...	...
		Mn	56 0	10	8	...				IS	39 02	...	...	...
		F	Merged in the next shock.							SR ₁	39 47	...	...	...
" 23		iP	21 16 21	...	...	1995	Epc: 5° 8' N., 95° 4' E. (J. S. A.). Off North Sumatra.			L	40 44	...	...	...
		IS	19 46	...	...	...				M	42 34	20	29	...	
		Mn	22 34	18	257	...				F	8 55 ...	...	...	...
		F	0 15 ...	...	...	...		" 20	E	e	4 8 12	...	...	...	Tremors.
" 24	E	e	22 44 ...	...	...	...	Tremors.			F	45 ...	...	...	...
		F	23 26 ...	...	...	...		" 20	E	e	12 45 ...	...	...	...	Tremors.
" 27	E	e	3 8 ...	...	...	...	Feeble.			F	55 ...	...	...	...
		F	38 ...	...	...	...		" 21	E	e	12 0 ...	...	...	...	Tremors.
" 28	E	e	2 4 ...	...	...	...	Feeble.			F	13 9 ...	...	...	...
		F	27 ...	...	...	...		" 24	E	e	8 31 54	...	...	...	Feeble.
" 28	E	e	6 5 ...	...	...	...	Tremors.			F	9 25 ...	...	...	...
		F	7 4 ...	...	...	...						

TABLE D₄—contd.

Date.	Compt.	Phase.	G. M. T.	Period.	Ampli- tude.	△	Remarks.	Date.	Compt.	Phase.	G.M.T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Sept. 25	E	e	13 20 09	...	...	...	Slight, very distant.	Oct. 19	E	iP	12 13 15	...	...	5455	Epc: Off Celebes.
		e	23 37	...	...	...				iPR ₁	15 06	...	...	...
		e	25 46	...	...	...				iS	20 25	...	...	...
		L(?)	50 53	...	...	...				iSR ₁	23 50	...	...	...
		M	58 09	24	15	...				iSR ₂	25 02	...	...	...
		F	14 54	...	...	...				iL	28 28	...	...	...
Oct. 3	E	iP	21 58 32	...	...	4995	Epc: Celebes Sea O: 21h. 50m. 20s. G.M.T.			Mn	36 56	16	13	...	
		iS	22 5 16	...	...	...				F	14 10	...	...	...
		iSR ₁	8 23	...	...	...		" 20	E	e	22 18	...	...	...	Tremors.
		iL	12 18	...	...	...				F	44	...	...	...
		Mn	22 13 17	43	...	...		" 21	E	e	2 1	...	...	...	Tremors.
		F	0 6	...	...	...				F	42	...	...	...
" 4	E	e	7 18	...	...	...	Tremors.	" 21	E	e	5 33	...	...	...	Tremors.
		F	8 38	...	...	...				F	6 13	...	...	...
" 5	E	e	0 12 23	...	...	...		" 22	E	(?)		...	...	...	Tremors. Lines overlapping. Phases not read- able.
		i	14 52	...	...	...				eP	6 38 19	...	...	11200	Epc: 60° 8' N., 149° 4' W. (J. S. A.), Alaska. O: 6h. 24m. 24s. G. M. T.
		e	21 53	...	...	...		" 23	E	iPR ₁	42 20	...	...	...
		Mn	50 43	24	15	...				iSePeS	48 54	...	...	...
" 5	E	eP	6 16 56	...	...	4695				S	50 4	...	...	...
		iS	23 24	...	...	...				iPS	51 13	...	...	...
		L	29 50	...	...	...				iPPS	52 2	...	...	...
		Mn	34 47	19	4	...				iSR ₁	57 2	...	...	...
		F	7 4	...	...	...				iSR ₂	7 0 44	...	...	...
" 5	E	iP	9 53 10	...	...	5250	Epc: 3° N., 126° 4' E. (J. S. A.). O: 9h. 44m. 38s. G.M.T.			iL	11 16	...	...	...
		iPR ₁	54 51	...	...	...		" 26	E	Mn	18 37	26	155	...	
		iPR ₂	55 30	...	...	...				F	9 40	...	...	...
		iS	10 0 09	...	...	...				iP	19 37 25	...	...	2800	Minute marks not clear.
		iSR ₁	3 05	...	...	...				iS	41 54	...	...	...	Epc: West of Malay Peninsula. O: 19h. 32m. 18s. G. M. T.
		iL	7 10	...	...	...				iL	45 0	...	...	...
		Mn	12 50	25	235	...				Mn	48 12	16	44	...	
		F	12 50	...	...	...				F	21 11	...	...	...
" 7	E	e	17 25	...	...	...	Feeble.	" 26-27	E	e	23 35	...	...	...	Tremors.
		F	49	...	...	...				F	0 11	...	...	...
" 10	E	e	3 17	...	...	...	Tremors.	" 29	E	eP	18 49 37	...	...	7000	Epc.: 13° 5' N., 145° E. Damage in Guam. O: 18h. 39m. 8s. G. M. T.
		F	4 10	...	...	...				PR ₁	52 00	...	...	...
" 13	E	e	6 41	...	...	...	Tremors.			S	58 14	...	...	...
		F	7 23	...	...	...				L	19 9 50	...	...	...
" 14	E	e	22 35	...	...	...	Tremors.	" 31	E	F	20 14	...	...	...
		F	23 37	...	...	...				e	15 50	...	...	...	Tremors.
		F	23 37	...	...	...				F	16 11	...	...	...
" 15	E	e	21 31	...	...	...	Tremors.	Nov. 2	E	iP	15 09 22	...	...	8060	Epc: 48° 5' N., 149° 5' E. Near Kurile Islands. O: 14h. 58m. 2s. G. M. T.
		F	23 13	...	...	...				PR ₁	12 12	...	...	...
" 16	E	e	12 8	...	...	...	Feeble.			iS	18 51	...	...	...
		F	57	...	...	...				iSR ₁	23 32	...	...	...
		F	57	...	...	...				iL	33 46	...	...	...
" 18	E	e	16 48	...	...	...	Tremors.			Mn	47 25	19	18	...	
		F	17 25	...	...	...				F	17 57	...	...	...

Date.	Compt.	Phase.	G.M.T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.	
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.		
Nov. 2-3	E	IP	20 56 26	...	...	6915	Minute marks not clear. Epc : 41° N., 139° E. Destructive in Fukujiama, Japan. Kew Δ = 83° 5. O : 20h. 6m. 11s. G. M. T.	Nov. 11	E	IP	17 22 00	...	...	1500	
		IPR ₁	53 37	...	...	...				IS (?)	24 26	...	...	...
		IPR ₂	21 0 20	...	...	...				L	25 11	...	...	...
		IS	4 59	...	...	...				Mn	26 40	10	14	...	
		IPS	5 17	...	...	...				F	55	...	...	...
		ISR ₁	9 4	...	...	...							
		ISR ₂	11 12	...	...	...				e	2 35	...	...	...	Feeble. Lines overlapping.
		IL	15 44			" 12	E	F	3 11	
		Mn	20 12	30	63	...										
		F	0 2			" 13	E	e	10 5	Tremors.
" 3	E	e	5 21	...	...	...	Tremors.			F	19	...	...	...
		F	55	...	...	...							
" 4	E	e	7 30	...	...	...	Feeble.			IP	12 43 35	...	...	8695	Epc: 56°N., 165°E. (Strasbourg). O: 12h. 31m. 29s. G.M.T.
		F	8 39	...	...	...			IPR ₁	46 40	...	...	...
" 4	E	e	9 18	Tremors.			IPR ₂	48 34		
		F	45	...	...	...			IS	53 33	...	...	...
" 4	E	e	13 54	Tremors.			IPS	54 26		
		F	14 8	...	...	...			ISR ₁	59 09	...	...	...
" 9	E	e	6 34	Tremors.			ISR ₂	13 2 37		
		F	57	...	...	...			IL	10 2	...	...	...
" 9	E	e	7 59	Feeble.			Mn	16 35	24	403	...		
		F	8 21	...	...	...			F	16 49	...	...	...
" 9	E	e	8 54	...	...	...	Feeble.								
		F	9 48	...	...	...		" 14	L	PR ₁	4 38 08	...	...	1690	
" 9	E	e	14 8	...	...	...	Feeble.			S	35 55	...	...	...
		F	15 7	...	...	...			ISR ₁	36 28	...	...	...
" 9	E	e	20 12	...	...	...	Tremors.			IL	36 56	...	...	...
		F	23	...	...	...			Mn	38 01	16	8	...		
" 10	E	e	1 6	...	...	...	Tremors.			F	5 33	...	...	...
		F	32	...	...	...		" 15-16	E	e	22 8	...	...	...	Feeble, long distance.
" 10	E	e	3 17	...	...	...	Tremors.			F	0 3	...	...	...
		F	50	...	...	...							
" 10	E	e	3 58	Tremors.			" 16-17	E	e	23 49	Tremors.
		F	4 32	...	...	...				F	0 3	...	...	...
" 10	E	e	5 8	Tremors.			" 17	E	e	15 56	Tremors.
		F	36	...	...	...				F	16 14	...	...	...
" 10	E	e	6 16	Tremors.			" 18	E	e	16 5	Tremors.
		F	34	...	...	...				F	17 11	...	...	...
" 10	E	e	11 39	Tremors.			" 19	E	eP ₁	21 30 14	...	16800	Epc: 14°N., 91°W. (U. S. C. G. S.).
		F	50	...	...	...				PR ₁	33 49	...	...	...
" 10	E	e	12 51	...	...	...	Tremors.			IScPcP	33 48	...	...	...
		F	14 5	...	...	...				PR ₂	37 5	...	...	...
" 10	E	e	16 21	...	...	...	Tremors.			ScPc PcS	40 30	...	...	...
		F	41	...	...	...				IPScPcS	44 17	...	...	...
" 10	E	e	17 55	...	...	...	Tremors.			IPPS	47 10	...	...	...
		F	18 38	...	...	...				ISR ₁	53 35	...	...	...
" 10	E	e	20 2	...	...	...	Tremors.			SR ₂	59 3	...	...	...
		F	24	...	...	...			eL	22 21 47	...	...	...
" 10-11	E	e	23 13	...	...	...	Feeble. Line overlapping.			Mn	45 42	20	20	...	
		F	0 5	...	...	...			F	23 32	...	...	...
" 11	E	e	4 46	...	...	...	Tremors.								
		F	5 15	...	...	...							

TABLE D₄—concl'd.

Date.	Compt.	Phase.	G.M.T.	Period.	Amplitude.	△	Remarks.	Date.	Compt.	Phase.	G. M. T.	Period.	Amplitude.	△	Remarks.
1936.			H. M. S.	Sec.	μ	Km.		1936.			H. M. S.	Sec.	μ	Km.	
Nov. 22	E	e	15 3 ...	...	...	...	Feeble. No minute marks.	Dec. 13	E	e	21 41 ...	...	...	...	Feeble.
		F	16 15 ...	...	...	...				F	22 38 ...	...	...	...
" 22	E	e	18 40 ...	...	...	...	Feeble. Times approximate.	" 14	E	e	4 5 ...	...	...	...	Feeble.
		F	20 45 ...	...	...	...				F	5 3 ...	...	...	...
" 23	E	e	1 39 ...	...	...	...	Feeble. Times approximate.	" 14	E	e	6 34 ...	...	...	...	Tremors.
		F	2 5 ...	...	...	...				F	7 3 ...	...	...	...
" 23	E	e	15 57 ...	...	...	...	Tremors.	" 18	E	e	15 20 ...	...	...	...	Tremors.
		F	16 7 ...	...	...	...				F	44 ...	...	...	...
" 23	E	e	18 38 ...	...	...	...	Tremors.	" 20	E	e	4 5 ...	...	...	...	Tremors.
		F	50 ...	...	...	...				F	30 ...	...	...	...
" 29	E	e	4 19 ...	...	...	...	Tremors.	" 20	E	1P	18 35 50	...	...	3355	Epc : South Sumatra. O : 18 h. 29m. 35s. G. M. T.
		F	39 ...	...	...	...				1S	40 57	...	...	...
" 29	E	e	8 39 ...	...	...	...	Tremors.			1SR ₁	42 39	...	...	...
		F	10 9 ...	...	...	...				L	44 46	...	...	...
" 30	E	1P	23 54 44	...	...	5345	Lines overlapping. Epc : Near Celebes Islands. O : 23h. 46m. 6s. G. M. T.			Mn	47 25 19 11	...	...	...
Dec. 1		1PR ₁	57 17	...	...	...				F	19 59 ...	...	...	...
		1S	0 1 48	...	...	...		" 21	E	e	19 21 ...	...	...	...	Tremors.
		1SR ₁	4 57	...	...	...				F	20 57 ...	...	...	...
		1SR ₂	6 2	...	...	...		" 26	E	PR	23 11 19	...	...	11890	Coda superposed by another shock. Epc : North off New Zealand. (Chieufeng).
		eL	9 5	...	...	...				1ScPcS	17 32	...	...	...
		Mn	18 32 18 10	...	...	...				PS	20 44	...	...	...
		F	1 23 ...	...	...	...				eSR ₁	26 40	...	...	...
" 1	E	1P	6 18 00	...	...	5270	Epc : 30° 5N., 122° E. O : 6h. 9m. 27s. G. M. T.	" 27	E	e	14 32 ...	...	...	...	Tremors. Lines overlapping.
		PR ₁	19 55	...	...	...				F	48 ...	...	...	...
		PR ₂	20 45	...	...	...				e	16 11 ...	...	...	...	Tremors. Lines overlapping.
		1S	25 0	...	...	...				F	36 ...	...	...	...
		L	32 48	...	...	...		" 29	E	1P	14 59 42	...	...	8405	Epc : 6° 53., 149° E.
		F	7 13 ...	...	...	...				1S	15 9 27	...	...	...
" 8	E	e	10 33 ...	...	...	...	Tremors.			1SR ₂	16 58	...	...	...
		F	11 23 ...	...	...	...				1L	23 0	...	...	...
" 9	E	e	14 57 ...	...	...	...	Tremors.			Mn	27 58 42 60	...	...	...
		F	15 14 ...	...	...	...				F	17 45 ...	...	...	...

T. ROYDS,
Director, Kodaikanal Observatory.

The following table contains a list of earthquakes that are reported by voluntary observers from various stations.

TABLE D₅.

Place at which felt.	Date.	G.M.T. of earthquake.	Duration.	Intensity (Rossi-Forel scale).	Number of shocks.	Remarks.	Place at which felt.	Date.	G.M.T. of earthquake.	Duration.	Intensity (Rossi-Forel scale).	Number of shocks.	Remarks.
	1936.	H. M.	Sec.					1936.	H. M.	Sec.			
Drosh	Jan. 3	23 40	5	3	1		Cooch Behar	June 18	15 20	About 35	4	1	
Drosh	" 4	00 15	5	3	1		Gauhati	" 18	14 57	20	6	...	
Drosh	" 7	11 55	15	5	1		Dhubri	" 18	14 56	16	7	2	
Drosh	" 30	22 45	5	3	1		Cherrapunji	" 18	14 58	30	5	2	
Muktesar	Feb. 4	12 20	4	5	1		Shillong	" 18	14 53	30	5	1	
Shillong	" 10	19 57	10	8	1		Shillong	" 22	04 20	5	4	1	
Gauhati	" 10	21 45	5	5	1		Srinagar	" 24	03 52	About 2	7	2	
Dumka	" 11	04 55	30	3	3		Gulmarg	" 24	04 03	6	8	2	
Motihari	" 11	04 57	2	...	...		Drosh	" 24	03 40	35	5	3	
Cooch Behar	" 11	20 34	15	6	2		Lahore	" 29	14 30	30	3	2	
Dhubri	" 11	20 05	18	7	4		Peshawar	" 29	14 32	About 60	8	4	
Gauhati	" 11	20 15	50	5	2		Muzaffarabad	" 29	14 35	25	4	2	
Salona	" 11	20 10	8	3	...	Only small vibrations.	Cherat	" 29	14 28	10	6	4	
Shillong	" 14	14 48	2	5	1		Multan	" 29	14 30	About 30	4	1	Continuous tremor.
Salona	" 14	15 37	15	3	...	Only small vibrations.	Drosh	" 29	14 30	90	6	3-4	
Salona	Feb. 23	15 08	5	3	...	Only small vibrations.	Kabul	" 29	14 23	15	4	2	
Gilgit	Mar. 2	20 00	15 } 50 }	7	2		Srinagar	" 29	14 30	About 7	9	3	Old walls of ruined buildings have fallen down.
Kalat	" 2	23 50	3	6	1		Gulmarg	" 29	14 5	12	9	6	Damages caused to huts.
Dhubri	" 2	23 36	6	7	2		Sonemarg	" 29	14 26	73	6	2	
Yatung	" 4	15 56	6	6	...	Several tremors.	Muzaffarabad	" 29	14 35	25	4	2	
Dhubri	" 10	15 46	4	7	1		Dras	" 29	14 26	60	7	2	
Pachmarhi	Apr. 8	00 28	4	10-15	1		Gilgit	" 29	14 25	15	5	1	
Dhubri	" 17	12 19	7	3	1		Rawalpindi	" 29	14 32	30-40	8	2	
Srinagar	" 26	12 10	8	abt. 4	2		D. I. Khan	" 29	14 32	15	7	3	
Jalgad (Ratnagiri District)	" 29	05 00	5	...	1	Tremor.	Skardu	" 29	14 48	30	6	2	
Gilgit	May 1	00 27	4	10	1		Kalat	Aug. 9	10 10	...	...	...
Srinagar	" 16	03 41	6	abt. 2	1		Gulmarg	Oct. 6	02 15	4	8	2	
Muktesar	" 27	06 23	5	abt. 40	1	Tremor.	Sandoway	" 11	12 06	About 1	3	1	
Berhampur	May 27	06 21	3	3	1		Srinagar	" 21	22 11	About 2	8	1	
New Delhi	" 27	06 22	8	14	1		Gauhati	Nov. 1	11 09	About 20	6	1	
Cawnpore	" 27	06 23	3	3	1		Salona	" 11	03 15	" 10-15	5	1	
Jaipur	" 27	06 23	5	Abt. 5	3 or 4		Salona	" 23	01 09	" 10	4	...	Only small vibrations.
Katmandu	" 27	06 22	180	5	2		Dhubri	Dec. 3	12 26	8	8	2	Continuous.
Shillong	" 30	07 09	8	5	1		Shillong	" 16	00 34	About 20	4	1	
Gauhati	" 30	07 10	6	Abt. 20	1		Yatung (Tibet)	" 25	01 00	About 5	5	1	
Dhubri	" 30	06 58	7	48	3								
Berhampur	" 30	07 11	6	4	1								
Salona	June 9	12 58	About 8	3	...	Distinct vibrations.							

J. M. SIL,

Meteorologist, Meteorological Office, Poona.

PUBLICATIONS OF THE INDIA METEOROLOGICAL DEPARTMENT.

(Complete list, including those publications which are now out of print.)

<p>The Indian Meteorologist's Vade Mecum— Part I, 2nd Edition (1883) Rs. 3* Part II (1877) Rs. 5*</p>	H. F. Blanford.	Indian Meteorological Memoirs—	Vol. I—	<p>Part I. On the winds of Calcutta—An analysis of 10 years' hourly observations of the windvane and four years' anemograms. The meteorology and climate of Yarkhand and Kashgar, being chiefly a discussion of registers kept by Dr. J. Scully in 1874-75. The diurnal variation of the barometer at Simla. Rs. 3*</p>	H. F. Blanford.
<p>Instructions to Observers of the Indian Meteorological Department, 2nd Edition (1902) Rs. 3* Instructions to Observers at the 2nd and 3rd class Observatories, 2nd Edition (1934) Rs. 1-4</p>	Sir John Eliot. Departmental.	Ditto.	Ditto.	<p>Part II. Storms in Bengal during the year 1876 accompanied with increased atmospheric pressure and the apparent reversal of the normal diurnal oscillation of the barometer. On the rainfall of Benares considered in relation to the prevailing winds. On the diurnal variation of the barometer at Indian stations (Part I): Calcutta and Hazaribagh . Rs. 3*</p>	Sir John Eliot.
<p>Tables for the Reduction of Meteorological Observations in India, 3rd Edition (1925) Rs. 5-8 Handbook of Cyclonic Storms in the Bay of Bengal for use of Sailors— Vol. I, Text, 2nd Edition (1900) Rs. 4* Vol. II, Plates, 2nd Edition (1901) Rs. 1-8*</p>	Sir John Eliot.	Ditto.	Ditto.	<p>Part III. Variation of rainfall in Northern India. Meteorological and hypsometrical observations in Western Tibet, recorded by Dr. J. Scully, with a discussion Rs. 3*</p>	S. A. Hill.
<p>CYCLONE MEMOIRS— Part I. Bay of Bengal Cyclone of May 26th to 28th, 1887. (1888) Re. 1* Part II. Bay of Bengal Cyclone of August 21st to 28th, 1888. (1890) Rs. 3 Part III. Bay of Bengal Cyclones of September 13th to 20th and October 27th to 31st, 1888, and Arabian Sea Cyclone of November 6th to 9th, 1888. (1890) Rs. 5 Part IV. An enquiry into the nature and course of storms in the Arabian Sea and a catalogue and brief history of all recorded storms in the Arabian Sea from 1848—1889. (1891) Rs. 3 Part V. Account of three cyclones in the Bay of Bengal and Arabian Sea during November, 1891. (1893) Rs. 3* Report of the Midnapore and Burdwan Cyclone of the 15th and 16th of October, 1874. (1875) Rs. 3* Report of the Vizagapatam and Backergunge Cyclones of October, 1876. (1877) Rs. 3*</p>	Ditto. Ditto. Ditto.	Ditto.	Ditto.	<p>Part IV. The winds of Karachi Rs. 3* Part V. Some results of the meteorological observations taken at Allahabad during the ten years 1870-79. The diurnal variation of the barometer at Indian stations (Part II): Goalpara, Patna and Leh . Rs. 3* Part VI. The meteorology of the North-West Himalayas Re. 1*</p>	H. F. Blanford. S. A. Hill. H. F. Blanford.
Report on the Madras Cyclone of May, 1877. (1879). Rs. 3*	Ditto.	Ditto.	Ditto.	Vol. II—	Sir John Eliot.
Monthly weather charts of the Bay of Bengal and adjacent sea north of the equator, showing mean pressure, winds and currents. (1886) Rs. 5*	H. F. Blanford.	Ditto.	Ditto.	<p>Part I. Account of the south-west monsoon storm of the 18th to the 24th of September, 1878, in the north of the Bay of Bengal. List of cyclones on the West Coast of India and in the Arabian Sea up to the end of year 1881 Rs. 2</p>	F. Chambers.
Monthly weather charts of the Arabian Sea and the adjacent portion of the North Indian Ocean, showing mean pressure, winds and currents. (1888) Rs. 5	Sir John Eliot.	Ditto.	Ditto.	<p>Part II. Note on the foregoing list of cyclones and on the Gujarat land cyclone of July 11th to 13th, 1881. On the temperature of North-Western India Rs. 2*</p>	H. F. Blanford.
Charts of the Bay of Bengal and adjacent sea north of the equator, showing the specific gravity, temperature and currents of the sea surface. (1887) Rs. 1-8	W. L. Dallas.	Ditto.	Ditto.	<p>Part III. Account of the south-west monsoon storms of the 8th to the 19th October, 1882, in the Bay of Bengal Rs. 2</p>	S. A. Hill.
Climatological Atlas of India. (1906) Rs. 27*	Sir John Eliot.	Ditto.	Ditto.	<p>Part IV. Account of the south-west monsoon storms generated in the Bay of Bengal during the years 1877 to 1881 Rs. 2</p>	Sir John Eliot.
Meteorological Atlas of the Indian seas and the North Indian Ocean. (1908) Rs. 13*	W. L. Dallas.	Ditto.	Ditto.	<p>Part V. Observations of temperature and humidity at a height of 40 feet above the ground at Alipore Observatory, Calcutta Re. 1</p>	Ditto.
Daily weather reports and charts of the Indian monsoon area for the years 1893 to 1899 each month, Re. 1*	Departmental.	Ditto.	Ditto.	Vol. III—	H. F. Blanford.
Normal weather or pilot charts of the Indian monsoon area for 8 A.M. for each month, November, 1900 to August, 1908 each month, Annas 4*	Ditto.	Ditto.	Ditto.	<p>Rainfall of India (a full discussion of the rainfall of India and cognate subjects. Normal or average rainfall; anomalous variations of the rainfall; two appendices) Rs. 8*</p>	H. F. Blanford.
Reports on the Meteorology of India for the years 1875—1890 (16 volumes)† each Rs. 10	C. Chambers.	Ditto.	Ditto.	<p>Vol. IV— Part I. Account of the south-west monsoon storm of the 12th to the 17th of May, 1884, in the Bay of Bengal and at Akyab. On the diurnal variation of the rainfall at Calcutta Rs. 3*</p>	Sir John Eliot.
Meteorology of the Bombay Presidency, 1878 Rs. 3-6 or 5s. 9d.	C. W. B. Normand.	Ditto.	Ditto.	<p>The meteorological features of the southern part of the Bay of Bengal Rs. 3*</p>	H. F. Blanford.
Storm tracks in the Arabian Sea. (1926) Rs. 3-8 or 6s.	Ditto.	Ditto.	Ditto.	<p>Part II. The False Point cyclone of September 22nd, 1885 Rs. 2*</p>	W. L. Dallas.
Rainfall Organisation (1929) As. 2	Departmental	Ditto.	Ditto.	<p>Part III. On the ground temperature observations made at the old observatory, Allahabad . Rs. 1-8*</p>	Sir Alexander Pedler.
Meteorology of the Persian Gulf and Mekran. (1931) Rs. 3 or 5s. 3d.	B. N. Banerji.	Ditto.	Ditto.	<p>Part IV. List and brief account of the south-west monsoon storms generated in the Bay of Bengal during the years 1882 to 1886 Rs. 3*</p>	S. A. Hill.
Five-day Normals of Maximum and Minimum Temperatures and Accumulated Rainfall. (1931). Rs. 4 or 6s. 6d.	Departmental.	Ditto.	Ditto.	<p>Part II. The False Point cyclone of September 22nd, 1885 Rs. 2*</p>	Sir John Eliot.
Winds, Weather and Currents on the Coasts of India and the Laws of Storms. (1931) Rs. 2-6 or 4s. 3d.	Ditto.	Ditto.	Ditto.	<p>Part III. On the ground temperature observations made at the old observatory, Allahabad . Rs. 1-8*</p>	H. F. Blanford.
Meteorological Conditions affecting Aviation over the North West Frontier (1934) Rs. 1-8 or 2s. 6d.	R. G. Varyad and A. K. Roy.	Ditto.	Ditto.	<p>Part IV. List and brief account of the south-west monsoon storms generated in the Bay of Bengal during the years 1882 to 1886 Rs. 3*</p>	W. L. Dallas.
Meteorology for Airmen in India— Part I. General Meteorological Features (1936) Rs. 4-12 or 8s.	Departmental.	Ditto.	Ditto.	<p>Part II. The False Point cyclone of September 22nd, 1885 Rs. 2*</p>	Sir Alexander Pedler.
Part II. Climatology of Air-Routes (1936) Rs. 2-2 or 4s. 10d.	Ditto.	Ditto.	Ditto.	<p>Part III. On the ground temperature observations made at the old observatory, Allahabad . Rs. 1-8*</p>	S. A. Hill.
Meteorological Organization for Airmen (M. O. A. Pamphlet 1937) Rs. 1-6 or 2s. 3d.	Ditto.	Ditto.	Ditto.	<p>Part IV. List and brief account of the south-west monsoon storms generated in the Bay of Bengal during the years 1882 to 1886 Rs. 3*</p>	Sir John Eliot.

* Out of print.

† Copies for the years 1875, 1876, 1878 to 1881, 1884, 1887 and 1890 are out of print.

Indian Meteorological Memoirs—(contd.).

Vol. IV—(contd.).

- Part V. The cyclonic storms of November and December, 1886, in the Bay of Bengal. Sir John Eliot.
- The cyclone of the 25th May to the 2nd June, 1881, in the Arabian Sea Rs. 3* F. Chambers.
- Part VI. On temperature and humidity observations made at Allahabad at various heights above the ground Rs. 1-8* S. A. Hill.
- Part VII. The Arabian Sea cyclone of the 4th to the 13th June, 1887. F. Chambers.
- On the meteorology and climatology of Northern Afghanistan Rs. 1-8* W. L. Dallas.
- Part VIII. An account of the more important cold weather storms in India during the years 1876 to 1891 Rs. 3* Sir John Eliot.

Vol. V—

- The discussion of the hourly observations made at Sibesar, Goalpara, Patna, Hazaribagh, Dhubri, Roorkee, Allahabad, Lucknow, Agra, Leh, Deesa, Karachi and Lahore and at Simla. Complete in 10 parts each part Re. 1* Parts I—VII, H. F. Blanford. Parts VIII—X, Sir John Eliot.

Vol. VI—

- Part I. The relation between sunspots and weather as shown by meteorological observations taken on board ships in the Bay of Bengal during the years 1856 to 1879. W. L. Dallas.
- Investigation into the mean temperature, humidity and vapour tension conditions of the Arabian Sea and Persian Gulf Rs. 2* Ditto.
- Part II. A preliminary discussion of certain oscillatory changes of pressure of long period and of short period in India Re. 1* Sir John Eliot.
- Part III. The hot winds of Northern India Ditto.
- An account of a storm developed in equatorial regions Rs. 2* W. L. Dallas.
- Part IV. Hailstorms in India during the period 1883—1897 with a discussion on their distribution. Re. 1* Sir John Eliot.
- Part V. A discussion of the anemographic observations recorded at Simla during the period September 1893 to August 1896 and at Darjiling during the period April 1885 to December 1896, and an investigation into the general features of the air movement in the Himalayan mountain area Re. 1* Ditto.
- Part VI. A discussion of the anemographic observations recorded at Darjiling during the period May 1885 to May 1896 and an investigation into the general features of the air movement in the Sikkim Himalayas Re. 1* W. L. Dallas.
- Part VII. A discussion of the thunderstorm observations recorded in 1897 at ten selected stations in India Re. 1*

Vol. VII—

- Hourly observations of pressure, temperature, vapour tension, humidity, cloud, wind direction and velocity of wind taken at Trivandrum during the years 1853 to 1864. Complete in 7 parts, each part, Rs. 1-8 Sir John Eliot.

Vol. VIII—

- Part I. Hourly meteorological observations recorded at the Agastia observatory during the period from January 1856 to September 1858 and from June to December 1864 Rs. 2 Ditto.
- Part II. Hourly comparative meteorological observations taken at Trivandrum, Vannatheertham (eastern station), Kalliad (western station) and Agastia for the periods 23rd March to 20th April 1857, 20th January to 19th February 1859, 9th September to 8th October 1864 and 2nd to 28th January 1865, also at Cape Comorin from 23rd September to 13th November 1858 and at Charatha and Kamala from 20th January to 19th February 1859 Re. 1 Ditto.

Indian Meteorological Memoirs—(contd.).

Vol. IX—

- The diurnal variation of atmospheric conditions at Chittagong, Cuttack, Jubbulpore, Pachmarhi, Nagpur, Poona, Belgaum, Bellary, Trichinopoly, Rangoon, Aden, Alipore and Jaipur. Complete in 9 parts each part, Rs. 1-8* Part I, H. F. Blanford. Parts II—VII, Sir John Eliot. Part VIII, D. Archibald. Part IX, Sir John Eliot.

Vol. X—

- Part I. The discussion of the hourly meteorological observations recorded at Trivandrum during the years 1853—1864 Rs. 3 Sir John Eliot.
- Part II. The discussion of the hourly meteorological observations recorded at Agastia during the years 1856—1858 and 1864 Rs. 2 Ditto.
- Part III. Discussion of the comparative hourly meteorological observations recorded at Trivandrum, Kalliad, Vannatheertham and Agastia for the periods 23rd March to 20th April 1857, 20th January to 19th February 1859, 9th September to 8th October 1864 and 2nd to 28th January 1865, and at Charatha and Kamala from 20th January to 19th February 1859. Rs. 2* Ditto.
- Part IV. Plates I to LVII, title-page, table of contents and corrigenda of Volume X, Parts I, II and III of the Indian Meteorological Memoirs Rs. 3 Ditto.

Vol. XI—

- Part I. Observations recorded during the solar eclipse of 22nd January 1898, at 154 meteorological stations in India Re. 1* Ditto.
- Part II. A discussion of the observations recorded during the solar eclipse of 22nd January 1898, at 154 meteorological stations in India Rs. 3* Ditto.
- Part III. Report on cloud observations and measurements in the plains of the "North-Western" Provinces of India during the period December 1898 to March 1900 Re. 1* E. G. Hill.

Vol. XII—

- Part I. A discussion on the failure of the south-west monsoon rains in 1899 Re. 1* W. L. Dallas.
- Part II. A discussion of the results of the hourly observations recorded at 29 stations in India given in Volumes V, IX and X of the Indian Meteorological Memoirs Rs. 3* Sir John Eliot.
- Part III. Discussion of the results of the hourly observations recorded at 29 stations in India given in Volumes V, IX and X of the Indian Meteorological Memoirs. (Final chapter and plates) Rs. 3* Ditto.
- Part IV. A meteorological history of the seven monsoon seasons, 1893—1899, in relation to the Indian rainfall Rs. 3* W. L. Dallas.

Vol. XIII—

- Daily normals of maximum temperature, minimum temperature, 8 A.M. air pressure reduced to 32°F. and rainfall; and five-day means of normal cloud amount, relative humidity and aqueous vapour pressure at 8 A.M. Rs. 5* Sir John Eliot.

Vol. XIV—

- Monthly and annual rainfall of 457 stations in India to the end of 1900 Rs. 3* Ditto.

Vol. XV—

- Part I. Summary and a brief discussion of observations of the clouds recorded at six stations in India during the period 1895—1900 Re. 1* Ditto.
- Part II. Report on cloud observations and measurements at Simla during the period June 1900 to January 1902 Re. 1* W. L. Dallas.
- Part III. Discussion of monthly mean surface and under-ground temperatures, deduced from observations taken at Lahore, Jaipur, Dehra Dun, Allahabad and Calcutta during the years 1880—1901 Re. 1* R. L. Jones.

Indian Meteorological Memoirs—(contd.).

Vol. XVI—

- Part I. Monthly means of air-pressure reduced to 32°F. and constant gravity, Lat. 45° . . . Rs. 3*
- Part II. A preliminary investigation of the more important features of the meteorology of Southern Asia, the Indian Ocean and neighbouring countries during the period 1892—1902, with appendices. . . . Rs. 3

Vol. XVII—

- Normal monthly and annual means of temperature, pressure, wind, humidity, cloud, rainfall and number of rainy days of stations in India, and neighbouring countries Rs. 3

Memoirs of the India Meteorological Department †—

Vol. XVIII—

- Part I. A discussion of the anemographic observations recorded at Rangoon from June 1878 to October 1901 and at Chittagong from June 1879 to December 1896 Rs. 2*
- Part II. A discussion of the anemographic observations recorded at Saugor Island from March 1880 to February 1904, and at Alipore (Calcutta) from March 1877 to February 1904 Rs. 2
- Part III. A discussion of the anemographic observations recorded at Allahabad from September 1896 to August 1904 and at Lucknow from July 1878 to October 1892 Rs. 2
- Part IV. A discussion of the anemographic observations recorded at Roorkee from September 1879 to August 1904; at Lahore from June 1889 to May 1905; and at Mussooree during May to October from 1877 to 1888 Rs. 2

Vol. XIX—

- Parts I and II. A discussion of the anemographic observations recorded at Pachmarhi from September 1883 to April 1887, and at Nagpur from January 1882 to December 1902 Rs. 2
- Parts III and IV. A discussion of the anemographic observations recorded at Port Blair from September 1894 to August 1904.
- A discussion of the anemographic observations recorded at Dhubri from November 1889 to May 1896 Rs. 1-8
- Parts V and VI. A discussion of the anemographic observations recorded at Jubbulpore from May 1889 to April 1900.
- A discussion of the anemographic observations recorded at Belgaum from May 1881 to April 1904. Rs. 1-8
- Parts VII and VIII. A discussion of the anemographic observations recorded at Deesa from January 1879 to December 1904.
- A discussion of the anemographic observations recorded at Karachi from January 1873 to December 1894 Rs. 1-8

Vol. XX—

- Part I. An account of the preparations made for determining the conditions of the upper air in India by means of kites Re 1*
- Part II. Kite flights made at Belgaum during the pre-monsoon and monsoon periods in 1906. Re 1*
- Part III. The Simla seismograms obtained between June 1905 and November 1908 Rs. 2*
- Part IV. A discussion of types of weather in Madras Re 1*
- Part V. A discussion of some of the anemographic observations recorded at Madras Re 1*
- Part VI. Correlation in seasonal variations of climate (Introduction) Re 1*
- Part VII. Kite flights in India and over the neighbouring sea areas during 1907 Re 1*
- Part VIII. On the electricity of rain and its origin in thunderstorms Rs. 3*

Vol. XXI—

- Part I. On the meteorological evidence for supposed changes of climate in India Rs. 1-8*
- Part II. Correlation in seasonal variations of weather, II Rs. 1-8*
- Part III. Data of heavy rainfall over short periods in India Re 1
- Part IV. On the rapid calculation of times of moon-rise and moonset Annas 8

Sir John Eliot.

Ditto.

Ditto.

Ditto.

Ditto.

Ditto.

Ditto.

Ditto.

W. A. Harwood.

Ditto.

Ditto.

J. H. Field.

Ditto.

J. Patterson.

R. L. Jones.

Ditto.

Sir Gilbert T. Walker.

J. H. Field.

Sir George C. Simpson.

Sir Gilbert T. Walker.

Ditto.

J. H. Field and S. M. Jacob.

Memoirs of the India Meteorological Department—(contd.).

Vol. XXI—(contd.).

- Part V. The liability to drought in India as compared with that in other countries Annas 8*
- Part VI. Potential gradient at Simla Annas 8

- Part VII. The cold weather storms of northern India. Annas 8*

- Part VIII. A further study of relationships with Indian monsoon rainfall Annas 8

- Part IX. Correlation in seasonal variations of weather, III Annas 8

- Part X. Correlation in seasonal variations of weather, IV, sunspots and rainfall Rs. 1-8

- Part XI. Correlation in seasonal variations of weather, V, sunspots and temperature Re 1

- Part XII. Correlation in seasonal variations of weather, VI, sunspots and pressure Re 1

- Part XIII. On the Calcutta standard barometer. Re 1

- Part XIV. Correlation of rainfall and the succeeding crops with special reference to the Punjab. Re 1

Vol. XXII—

- Part I. Monthly and annual rainfall normals. Rs. 1-8

- Part II. Monthly and annual normals of number of rainy days Rs. 1-8

- Part III. Monthly and annual normals of pressure, temperature, relative humidity, vapour tension and cloud Rs. 1-8

- Part IV. On winds at ground level and above, at nine stations in India Rs. 2

- Part V. Cloud observations made in India between 1877 and 1914 Re 1

- Part VI. On dust raising winds and descending currents Annas 8

- Part VII. On dust-raising winds Annas 8

Vol. XXIII—

- Part I. Wet bulb temperatures and the thermodynamics of the air Re 1

- Part II. Correlation in seasonal variations of weather, VII, the local distribution of monsoon rainfall. Re 1

- Part III. Mean monthly characters of upper-air winds deduced from the flights of pilot balloons at thirteen stations in India during the period 1910 to 1919 Rs. 2

- Part IV. The effects of oscillations and of "lag" on the readings of the Kew pattern barometer. Re 1

- Part V. On cleaning and refilling various types of barometer, together with a description of several usual patterns Rs. 1-8

- Part VI. On Indian monsoon rainfall in relation to South American weather, 1875—1914 Rs. 2

- Part VII. Monthly and annual normals of rainfall and of rainy days Rs. 7-12

- Part VIII. Frequency of heavy rain in India Rs. 3-14.

Vol. XXIV—

- Part I. On the seat of activity in the upper air. Re 1

- Part II. On errors of observation and upper air relationships Re 1

- Part III. On exposures of thermometers in India Rs. 1-8

- Part IV. Correlation in seasonal variations of weather, VIII, a preliminary study of world weather. Rs. 2

- Part V. The free atmosphere in India, introduction Rs. 1-12

- Part VI. The free atmosphere in India, observations with kites and sounding balloons up to 1918. Rs. 1-8

- Parts VII & VIII. The free atmosphere in India—(vii) Heights of clouds and directions of free air movement.

- (viii) Upper-air movement in the Indian monsoon and its relation to the general circulation of the atmosphere Rs. 1-14

- Part IX. Correlation in seasonal variations of weather, IX, a further study of world weather. Rs. 2-12

- Part X. Correlation in seasonal variations of weather, X, applications to seasonal forecasting in India. Annas 8

Sir Gilbert T. Walker.

Sir George C. Simpson.

Sir Gilbert T. Walker and Rai Bahadur Hem Raj.

Sir Gilbert T. Walker.

Ditto.

Ditto.

Ditto.

Ditto.

Ditto.

E. P. Harrison.

S. M. Jacob.

Sir Gilbert T. Walker.

Ditto.

Ditto.

J. H. Field.

W. A. Harwood.

E. H. Hankin.

C. W. B. Normand.

Ditto.

Sir Gilbert T. Walker.

J. H. Field.

E. P. Harrison.

Ditto.

R. C. Mossman.

Sir Gilbert T. Walker.

Ditto.

P. C. Mahalanobis.

Ditto.

J. H. Field.

Sir Gilbert T. Walker.

J. H. Field.

W. A. Harwood.

Ditto.

Sir Gilbert T. Walker.

Ditto.

Ditto.

Ditto.

Ditto.

Ditto.

Ditto.

Ditto.

* Out of print.

† The Indian Meteorological Memoirs are styled by this name from Vol. XVIII.

Memoirs of the India Meteorological Department— (concl.d.).

Vol. XXIV—(contd.)

- Part XI. Rainfall types in India in the cold weather period, December to March 1915 As. 4

Vol. XXV—

- Part I. Sky illumination at sunrise and sunset. As. 10 or 1s.
Part II. Summary of Indian rainfall for the fifty years 1875—1924 Rs. 8 or 13s. 6d.
Part III. Data of heavy rainfall over short periods in India Rs. 2-2 or 4s.
Part IV. Correlation between weather and crops with special reference to Punjab wheat. Re. 1 or 1s. 9d.
Part V. Discussion of results of sounding balloon ascents at Agra during the period July 1925—March 1928 and some allied questions Rs. 2 or 3s. 6d.
Part VI. The wind at Agra and its structure Rs. 2-14 or 5s.
Part VII. An analysis of the base line values of autographic instruments Rs. 1-4 or 2s.
Part VIII. The lunar atmospheric tide at Bombay As. 10 or 1s.
Part IX. Evaporation and its measurement (First Paper) Rs. 2 or 2s. 6d.
Part X. Solar radiation measurements at Poona in 1931 As. 12 or 1s. 3d.

Vol. XXVI—

- Part I. Registration of earth-current with neutral electrodes Rs. 1-6 or 2s. 3d.
Part II. The Indian southwest monsoon and the structure of depressions associated with it. Rs. 2-10 or 4s. 9d.
Part III. On the physical characteristics of fronts during the Indian southwest monsoon. Rs. 1-9 or 2s. 9d.
Part IV. Discussion of results of sounding balloon ascents at Poona and Hyderabad during the period October 1928 to December 1931 Rs. 2-8 or 4s. 6d.
Part V. Soundings of temperature and humidity in the field of a tropical cyclone and a discussion of its structure Rs. 1-6 or 2s. 3d.
Part VI. Typhoons and Indian weather Rs. 1-10 or 2s. 9d.
Part VII. Latent instability in the atmosphere revealed by some Indian tephigrams. Rs. 1-8 or 2s. 6d.

Scientific Notes—

Vol. I—

- No. 1. Comparison of upper gradient winds, Agra and Bangalore Re. 1-3 or 2s.
No. 2. An analysis of the Madras hourly rainfall records for the years 1865 to 1875 and 1901 to 1917 As. 9 or 1s.
No. 3. Thunderstorms of Calcutta, 1900—1926 As. 14 or 1s. 3d.
No. 4. On Temperatures of exposed rails at Agra. As. 8 or 10d.
No. 5. Frequency of thunderstorms in India As. 6 or 8d.
No. 6. Correlation between pre-monsoon conditions over N. W. India and subsequent monsoon rainfall over N. W. India and the Peninsula. As. 6 or 9d.
No. 7. Normal monthly upper winds over eight stations in India Rs. 1-12 or 3s.
No. 8. Monthly normal isobars and wind-roses at 0.5, 1, 2 and 3 km. above sea-level over India and neighbourhood Rs. 4 or 6s. 9d.
No. 9. Comparison of temperatures in Stevenson screens at heights of 6 ft., 4 ft. and 2 ft. As. 7 or 9d.
No. 10. Distribution of temperature in the lower stratosphere Re. 1 or 1s. 9d.

Vol. II—

- No. 11. Comparative observations of temperature inside white painted, unpainted and black painted Stevenson screens As. 6 or 8d.
No. 12. The association of the mid-monsoon Indian rainfall with pressure distribution over the globe As. 10 or 1s.

Sir Gilbert T. Walker and T. C. Kameswara Rao.

K. R. Ramanathan.
Departmental.

Ditto.

M. V. Unakar.

K. R. Ramanathan.

Barkat Ali.

S. K. Banerji.

S. K. Pramanik.

S. K. Banerji and H. M. Wadia.

S. S. Kohli.

S. K. Banerji.

K. R. Ramanathan and K. P. Ramanathan.

N. K. Sur.

K. R. Ramanathan and K. P. Ramanathan.

K. R. Ramanathan.

V. Doraiswamy Iyer.

V. V. Sohoni and (Miss) M. M. Paranjpe.

Mohamad Ishaque.

V. Doraiswamy Iyer.

V. V. Sohoni.

K. R. Ramanathan.

Departmental.

M. V. Unakar.

Departmental.

Ditto.

K. R. Ramanathan.

P. R. Krishna Rao.

Barkat Ali.

M. V. Unakar.

Scientific Notes—(contd.).

Vol. II—(contd.).

- No. 13. Atmospheric instability at Agra associated with a western disturbance As. 14 or 1s. 6d.
No. 14. Horizontal atmospheric visibility at Agra As. 6 or 8d.
No. 15. Winds in higher levels over Agra. Re. 1 or 1s. 9d.
No. 16. Winds in the first 3 km. over Port Blair. As. 12 or 1s. 3d.
No. 17. Tables of monthly average frequencies of surface and upper winds up to 3 km. in India, Parts A—D Rs. 4-8 or 8s. 6d.

K. R. Ramanathan.
Barkat Ali.

N. K. Sur.

K. P. Ramanathan.
Departmental.

Vol. III—

- No. 18. The structure of the Madras storm of January 1929 Rs. 1-10 or 2s. 6d.
No. 19. Distribution of air density at mean sea level over India Rs. 1-4 or 2s.
No. 20. Correlation between Rainfall in N. W. India and height of Indus river at Bukkur. As. 6 or 8d.
No. 21. Upper air circulation over India and its neighbourhood up to the cirrus level during the winter and the monsoon Rs. 2 or 3s. 6d.
No. 22. The structure and movement of a storm in the Bay of Bengal during the period 13th to 19th November 1928 Rs. 2-4 or 4s. 3d.
No. 23. Historical note on the catch of rain gauges Re. 1 or 1s. 9d.
No. 24. On the utility of observations of barometric characteristics and tendencies for local forecasting in North-West India As. 8 or 10d.
No. 25. Heights of base of clouds in India as determined from pilot balloon ascents As. 5 or 6d.
No. 26. Some statistical relations of temperature and pressure in the upper atmosphere over Agra and Batavia As. 4 or 5d.
No. 27. A study of thunderstorms in Poona in 1930 Rs. 1-2 or 2s.
No. 28. Horizontal gradients of pressure and temperature in the upper atmosphere over India. As. 6 or 8d.
No. 29. The Bengal cyclone of September 1919 Rs. 1-4 or 2s.
No. 30. The structure of the sea breeze at Poona Re. 1 or 1s. 9d.

K. R. Ramanathan and A. A. Narayana Aiyar.
U. N. Ghosh.

M. V. Unakar.

H. C. Banerjee and K. R. Ramanathan.
K. R. Ramanathan.

H. R. Puri.

R. P. Batty.

M. V. Narayanan and M. P. Mannan.
S. Gopal Rao.

B. N. Desai.

A. Narayanan.

V. Doraiswamy Iyer.
K. R. Ramanathan.

Vol. IV—

- No. 31. The lunar atmospheric tide at Kodaikanal and Peryakulam As. 4 or 5d.
No. 32. On the relation between the weather and the variation of the normal vertical gradients of temperature in Northwest India As. 9 or 1s.
No. 33. Temperature changes in Calcutta thunderstorms As. 10 or 1s.
No. 34. A study of two pre-monsoon storms in the Bay of Bengal and a comparison of their structure with that of the Bay storms in the winter months Rs. 1-4 or 2s.
No. 35. An improved method of sounding the lower layers of the atmosphere As. 6 or 8d.
No. 36. Contrivances for lifting the pens off the recording plate of the Dines' balloon meteorograph during its descent As. 5 or 6d.
No. 37. The seasonal forecasting formulae used in the India Meteorological Department As. 7 or 9d.
No. 38. Rainfall of Siam Re. 1 or 1s. 9d.
No. 39. A study of the structure of the Bay storm of November 1926 Rs. 2-2 or 4s.
No. 40. The katabatic winds of Poona. Re. 1 or 1s. 9d.
No. 41. The sea-breeze at Karachi. Rs. 1-8 or 2s. 6d.
No. 42. A discussion of monthly mean values of upper air temperatures and humidities obtained from aeroplane ascents at Peshawar and Quetta As. 10 or 1s.
No. 43. On the extreme dryness observed at Kodaikanal during the winter months Rs. 1-8 or 2s. 6d.
No. 44. Thunderstorms in the Peninsula during the pre-monsoon months April and May. Rs. 1-10 or 2s. 9d.

Pramanik, Chatterjee and Joshi.

S. Atmanathan.

V. V. Sohoni.

K. R. Ramanathan and H. C. Banerjee.
G. Chatterjee.

G. Chatterjee and P. M. Neogi.

S. R. Savur.

V. Doraiswamy Iyer.

Sobhag Mal and B. N. Desai.

S. Atmanathan.

L. A. Ramdas.

A. Narayanan.

S. L. Malurkar.

S. P. Venkiteshwaran.

Scientific Notes—(concl'd.).**Vol. IV—contd.**

- No. 45. The method of coincidences or a quick method of determining the approximate value of a simple correlation coefficient As. 3 or 4d.

Vol. V—

- No. 46. On solitary gusts associated with reversals of pressure gradients As. 10 or 1s.
 No. 47. Horizontal atmospheric visibility at Quetta As. 8 or 10d.
 No. 48. On some characteristics of the tropopause and upper troposphere over N. W. India. Rs. 1-2 or 2s.
 No. 49. Tables extending Walker's criteria and for finding the chance of success of a forecast. As 6 or 8d.
 No. 50. Inversions of lapse-rate over Karachi As. 6 or 8d.
 No. 51. A preliminary study of the rainfall of Quetta As. 10 or 1s.
 No. 52. Thunderstorms in South India during the post-monsoon months, October and November 1929. Rs. 1 or 1s. 9d.
 No. 53. A note on the rapid fluctuations of atmospheric pressure and the atmospheric instability at Peshawar during 1928 and 1929 As. 12 or 1s. 3d.
 No. 54. A note on fog and haze at Poona during the cold season Rs. 1-2 or 2s.

- No. 55. On the nature of the frequency distribution of precipitation in India during the monsoon months, June to September As. 10 or 1s.
 No. 56. A preliminary study of a tornado at Peshawar Rs. 2 or 3s. 6d.
 No. 57. Humidity records obtained at Agra with hair elements and with wet and dry elements in a Dines' meteorograph As. 7 or 9d.
 No. 58. On forecasting weather over north-east Baluchistan during the monsoon months July and August. As. 4 or 5d.
 No. 59. A statistical study of the maximum temperatures at Poona As. 6 or 8d.
 No. 60. A study of horizontal atmospheric visibility at Bangalore As. 10 or 1s.

Vol. VI—

- No. 61. Evaporation in India calculated from other meteorological factors Rs. 1-12 or 3s.
 No. 62. The distribution of temperature in the upper levels of a depression originating in Bay of Bengal during the Indian south-west monsoon As. 5 or 6d.
 No. 63. Wind data for winds mills. Rs. 1-6 or 2s. 3d.
 No. 64. Some observations on the thermal structure of cumuliform cloud As. 14 or 1s. 6d.
 No. 65. The thermal structure of the upper air over a depression during the Indian south-west monsoon As. 8 or 10d.
 No. 66. Normal monthly percentage frequencies of upper winds at 4, 6, 8 and 10 km. above sea-level obtained from pilot balloon ascents. Rs. 3-12 or 6s. 6d.
 No. 67. Measurement of vertical currents in the atmosphere, mainly of thermal origin, with pilot balloons As. 14 or 1s. 8d.
 No. 68. Hourly rainfall at Lahore As. 8 or 10d.

Vol. VII—

- No. 69. A statistical analysis of the distribution of the south-west monsoon rainfall at Akola. As. 12 or 1s. 3d.
 No. 70. A study of correlation coefficients of mean maximum temperatures between successive months at a few selected stations in India. As. 5 or 6d.
 No. 71. A note on the statistical study of rainfall in the Mysore state. As. 7 or 9d.
 No. 72. Normal monthly percentage frequencies of surface and upper winds up to 3 km. at Allahabad, Begumpet, Delhi, Sambalpur, Sandoway, Silchar and Victoria Point As. 12 or 1s. 3d.

S. R. Savur.

S. Atmanathan.
A. K. Roy.N. K. Sur and J. C. Roy.
S. R. Savur and S. Gopal Rao.
A. S. Hariharan.
A. K. Roy and R. C. Bhattacharya.
S. P. Venkateshwaran.S. Basu and S. K. Pramanik.
L. A. Ramdas and S. Atmanathan.
D. Sankaranarayanan.

R. G. Veryard.

S. P. Venkateshwaran.

A. K. Roy and R. C. Bhattacharya.

R. J. Kalamkar.

A. Anantapadmanabha Rao.

P. K. Raman and V. Satakopan.

N. K. Sur.

V. Doraiswamy Iyer.
R. G. Veryard.

N. K. Sur.

Departmental.

K. R. Ramanathan and K. P. Ramakrishnan.
V. Doraiswamy Iyer. and V. Lakshmi-Narasimhan.

V. Satakopan.

R. J. Kalamkar.

A. Anantapadmanabha Rao.
Departmental.**Bombay Magnetic Data—**

Magnetic, meteorological and seismological observations made at the Government Observatory, Bombay:

1845—97 @	
1898—99	Rs. 5-8*
1900—01	Rs. 4-8
Ditto, ditto, Bombay and Alibag—	
1902—05	Rs. 14-10
1906—10	Rs. 15-0
1911—15	Rs. 19-0
1916—20	Rs. 27-8
1921	Rs. 9-12 or 16s.
1922	Rs. 7-6 or 11s. 9d.
1923	Rs. 8-8 or 14s. 3d.
1924	Rs. 6 or 11s.
1925	Rs. 9-12 or 16s.
1926	Rs. 10-12 or 17s. 6d.
1927	Rs. 10-12 or 17s. 6d.
1928	Rs. 14 or 22s. 6d.
1929	Rs. 12 or 19s. 6d.
1930	Rs. 12-4 or 20s.
1931	Rs. 12-6 or 20s.
1932	Rs. 13-14 or 22s. 6d.
1933	Rs. 11 or 18s.
1934	Rs. 10-4 or 17s.

Colaba Magnetic Data, 1846—1905, Part I. Rs. 15

Ditto, Part II. Rs. 30

Rainfall of the Bombay Presidency for the years previous to 1891, Vols. I—VI. Rs. 5-12 to Rs. 6-8

Kodaikanal Observatory Bulletins : Each annas 8

Nos. I to VIII, XIII, XIV, XVII, XIX, XXI and XXIII.
 Nos. IX to XII, XV, XVIII, XX, XXII, XXIV to XXXII, XXXVI, XLI, XLII, XLV, LI, LV, LVIII to LXII, LXIV, LXVIII, LXIX and LXXII.
 No. XVI

Nos. XXXIII, XXXIV, XXXVII, XXXVIII, XL, XLIII, XLVII, XLVIII, L, LII, LIII, LIV, LVI, LVII, LXIII, LXV, LXVI, LXX, LXXI, LXXIII to LXXV, LXXVIII to LXXXI, LXXXIII to LXXXV, LXXXVIII to XC, XCII, XCIV, XCV and CVII.

No. XXXV

Nos. XXXIX and XLIX

No. XLIV, LXXVI and LXXVII

No. XLVI

No. LXVII

No. LXXXII

Nos. LXXXVI, LXXXVII and XCIX

No. XCI

No. XCII

No. XCVI

No. XCVII

Nos. XCVIII, C, CII, CIII, CIV, CV, CVI and CVIII.

No. CI

Memoirs of the Kodaikanal Observatory, Vol. I—

Part I. The spectrum of sunspots Rs. 1-8

Part II. Results of prominence observations Rs. 2-0

Periodical Publications of the Department—

Annual report of the Director General of Observatories on the observatories of Kodaikanal, Madras, Bombay and Alibag accompanying their annual reports† Annas 8.

Departmental.N. A. F. Moosa.
Ditto.

C. M. Smith.

J. Evershed.

Sir Gilbert T. Walker.
T. Royds.

T. Royds and S. Sitarama Ayyar.

J. Evershed and T. Royds.
A. A. Narayana Ayyar.

J. Evershed and A. A. Narayana Ayyar.

J. Evershed and P. R. Chidambara Ayyar.

P. R. Chidambara Ayyar.

A. L. Narayan.
A. S. Rao.

G. V. Krishna swamy.

M. Salaruddin.
P. R. Chidambara Iyer.Departmental.
C. P. S. Menon.J. Evershed.
J. Evershed and Mary A. Evershed.

Departmental.

* Out of print.

@ Only volumes for 1891, 1892 and 1896 are available. The rest are out of print.

† Discontinued from 1922.

Periodical Publications of the Department—(contd.).

Report of the Kodaikanal Observatory, 1922—1935	As. 1 to 6
Annual report on the administration of the Meteorological Department of the Government of India.	
Forecast of cold weather rains, January, February and March.	
Ditto for the monsoon period, June to September.	
Ditto for August and September.	
Statement of actual rainfall June to September and comparison of the forecasts with the actual rainfall.	
Statement of the rainfall and snowfall of India, January, February and March and comparison of the seasonal forecast with the actual precipitation.	
Daily rainfall of India for the years 1891—1922 (32 Vols.)	Rs. 9 a volume††
Daily rainfall of India for the years 1923—24 each	Rs. 10-12 or 17s. 6d.
Ditto for 1925—34	each Rs. 68-8
Monthly rainfall of India, 1901—1922 (22 Vols.)	Rs. 2 a volume**
Monthly rainfall of India, 1923—1924 each	Rs. 2-8 or 4s. 6d.
Ditto for 1925—34,	each Rs. 16-9
India Weather Review—Annual Summaries for the years 1891—1920 (30 parts)	each Rs. 2†
India Weather Review—	
1921—22	each Rs. 11-4
1923	Rs. 12-8 or 20s.

Departmental.

Periodical Publications of the Department—(concl'd.).

1924	Rs. 8-12 or 14s. 6d.
1925	Rs. 10-2 or 16s. 9d.
1926	Rs. 13-12 or 22s.
1927	Rs. 10-12 or 17s. 6d.
1928 (Parts A to G). Each part priced separately.	
1929 (Introduction and Parts A to F).	"
1930 do. do.	"
1931 do. do.	"
1932 do. do.	"
1933 (Introduction and Parts A to D).	"
1934 do. do.	"
1935 do. do.	"
Monthly Weather Reviews for each month January, 1891 to December, 1920	each annas 12§
Monthly Weather Report	each annas 8||
Indian Daily Weather Report, published in Poona.	
Monthly subscription Rs. 3¶	
Calcutta Daily Weather Report, published in Calcutta.	
Monthly subscription Rs. 3¶	
Bombay Daily Weather Report, published from 1st May to 30th November in Bombay.	
Monthly subscription Rs. 3-8§§	
Madras Daily Weather Report, published in Madras.	
Monthly subscription Rs. 3§§§	
Weekly Weather Report, published in Poona.	
Monthly subscription Re. 1 or 4 As. a copy¶	
Upper Air data, Parts 1—14 (1928 to 1935)	Each part Rs. 4-4 or 7s.

Departmental.

†† Volumes for 1891, 1902 to 1903 and 1913 to 1917, 1920, 1921, and 1922 are out of print.

** Volumes for 1902—1906, 1912—1917 and 1910 are out of print.

† Copies for 1891 to 1905, 1908, 1910 and 1911 are out of print.

§ Discontinued from January 1921. Copies for 1891—97, January, March and May 1898, and January 1899 to June, September and October 1902, 1903 and January to March, May, June and November 1904, September 1907, February, May to July 1908, January to April and August 1909, January 1911, May and July 1912, April to July 1916 are out of print.

|| Started from January 1923. This price includes postage.

§§ Discontinued from 1928.

¶ These prices include postage in India.

§§§ Discontinued from January 1932.

GOVERNMENT OF INDIA
METEOROLOGICAL DEPARTMENT

INDIA WEATHER REVIEW, 1936

INTRODUCTION

CONTENTS

	Pages.
Introduction	i to iv
Errata to Monthly Weather Reports and Annual Summary	e1 to e8

Published by Authority of the Government of India

UNDER THE DIRECTION OF
C. W. B. NORMAND, M.A., D.Sc.,
Director General of Observatories



DELHI: MANAGER OF PUBLICATIONS
1938

Price As. 12 or 1s. 3d.

GOVERNMENT OF INDIA
METEOROLOGICAL DEPARTMENT

INDIA WEATHER REVIEW, 1936

ANNUAL SUMMARY

PART A.

SUMMARY OF WEATHER WITH TABLES

CONTENTS

	Page.		Page.
Weather and rainfall of 1936	A1	Table VIII—Hourly wind velocities	A39
Table I—Divisional and sub-divisional means	A5	Table IX—Visibility of the Nilgiris from Kodaikanal	A41
Tables II—VI—Abstract of observations at individual stations	A6	Tables X—XIV—Divisional and sub-divisional means of rainfall and rainy days	A42
Table VII—Sunshine and Nocturnal Radiation	A34	Table XV—Days of Rainfall of 10" and above	A51

Published by Authority of the Government of India

UNDER THE DIRECTION OF

C. W. B. NORMAND, M.A., D.Sc.,

Director General of Observatories.

PUBLISHED BY MANAGER OF PUBLICATIONS, DELHI.
PRINTED BY THE MANAGER, GOVERNMENT OF INDIA PRESS, NEW DELHI.
1938.

Price Rs. 3-14 or 6s. 6d.

List of Agents in India from whom Government of India Publications are available.

(a) PROVINCIAL GOVERNMENT BOOK DEPOTS.

MADRAS :—Superintendent, Government Press, Mount Road, Madras.
BOMBAY :—Superintendent, Government Printing and Stationery, Queen's Road, Bombay.
SIND :—Manager, Sind Government Book Depot and Record Office, Karachi (Sadar).
UNITED PROVINCES :—Superintendent, Printing and Stationery, U. P., Allahabad.
PUNJAB :—Superintendent, Government Printing, Punjab, Lahore.
CENTRAL PROVINCES :—Superintendent, Government Printing, Central Provinces, Nagpur.
ASSAM :—Superintendent, Assam Secretariat Press, Shillong.
BIHAR :—Superintendent Government Printing, P. O. Gulzarbagh, Patna.
NORTH-WEST FRONTIER PROVINCE :—Manager, Government Printing and Stationery, Peshawar.
ORISSA :—Press Officer, Secretariat, Cuttack.

(b) PRIVATE BOOK-SELLERS.

<p>Advani Brothers, P. O. Box 100, Cawnpore. Aero Stores, Karachi.* Banthiya & Co., Ltd., Station Road, Ajmer. Bengal Flying Club, Dum Dum Cantt.* Bhatia Book Depot, Saddar Bazar, Ranikhet. Bhawani & Sons, New Delhi. Book Company, Calcutta. Booklover's Resort, Talikad, Trivandrum, South India. Burma Book Club, Ltd., Rangoon. Butterworth & Co. (India), Ltd., Calcutta. Careers, Mohini Road, Lahore. Chatterjee & Co., 3, Bacharam Chatterjee Lane, Calcutta. Chukervetty, Chatterjee & Co., Ltd. 13, College Square, Calcutta. City Book Club, 98, Phayre Street, Rangoon. Das Gupta & Co., 54/3, College Street, Calcutta. Delhi and U. P. Flying Club, Ltd., Delhi.* English Book Depot, Ferozepore. English Book Depot, Taj Road, Agra. English Bookstall, Karachi. English Book Store, Abbottabad, N.-W. F. P. Faqr Chand Marwah, Peshawar Cantt. Fono Book Agency, Simla. Gautama Brothers & Co., Ltd., Meston Road, Cawnpore. Higginbothams, Madras. Hindu Library, 137/F, Balaram De Street, Calcutta. Hyderabad Book Depot, Chaderghat, Hyderabad (Deccan). Imperial Book Depot and Press, near Jama Masjid (Machbliwalan), Delhi. Indian Army Book Depot, Dayalbagh, Agra. Indian Army Book Depot, Daryaganj, Delhi. Indian Book Shop, Benares City. Indian School Supply Depot, Central Avenue, South, P. O. Dharamtala, Calcutta. Insurance Publicity Co., Ltd., Lahore. International Book Service, Poona 4. Jacques & Co., Kamptee Road, Nagpur, Messrs. Neston. Jaina & Bros., Mori Gate, Delhi and Connaught Place, New Delhi, Messrs. J. M. Kamala Book Depot, 15, College Square, Calcutta. Karnataka Publishing House, Bangalore City. Keale & Co., Karachi. Keshao Book Stall, Khadi bazar, Belgauim. Kitabistan, 17-A, City Road, Allahabad. Krishnaswami & Co., Teppakulam P. O., Trichinopoly Fort, Messrs. S. Lahiri & Co., Calcutta, Messrs. S. K. Local Self-Govt. Institute, Bombay. London Book Co. (India), Arbab Road, Peshawar, Murree, Nowshera, Rawalpindi.</p>	<p>Malhotra & Co., Post Box No. 94, Lahore, Messrs. U. P. Malik & Sons, Sialkot City. Mathur B. S., Bookseller, Civil Lines, Jodhpur. Minerva Book Shop, Anarkali Street, Lahore. Modern Book Depot, Bazar Road, Sialkot Cantt. Modern Book Depot, Napier Road, Jullundur Cantt. Mohanal Dossabhai Shah, Rajkot. Mohendra Brothers, Messrs. Lashkar, Gwalior State. Nandkishore & Bros., Chowk, Benares City. New Book Co., "Kitab Mahal", 192, Hornby Road, Bombay. Newman & Co., Ltd., Calcutta, Messrs. W. Oxford Book and Stationery Company, Delhi, Lahore, Simla, Meerut and Calcutta. Parikh & Co., Baroda, Messrs. B. Pioneer Book Supply Co., 20, Shib Narayan Das Lane, Calcutta and 219, Cloth Market, Delhi. Popular Book Depot, Grant Road, Bombay. Punjab Religious Book Society, Lahore. Raghunath Prasad & Sons, Patna City. Rama Krishna & Sons, Booksellers, Anarkali, Lahore. Ram Krishna Bros., Opposite Bishrambag, Poona City. Ram Narain Lal, Katra, Allahabad. Ramesh Book Depot & Stationery Mart, Kashmere Gate, Delhi. Ray & Sons, 43, K. & L. Edwardes Road, Rawalpindi, Murree and Peshawar, Messrs. J. Roy Chowdhury & Co., 72, Harrison Road, Calcutta, Messrs. N. M. Saraswati Book Depot, 15, Lady Hardinge Road, New Delhi. Sarear & Sons, 15, College Square, Calcutta, Messrs. M.C. Sarkar & Co., Ltd., 18, Shama Charan De Street, and 6, Hastings Street, Calcutta, Messrs. P. C. Sharada Mandir Ltd., Nai Sarak, Delhi. Standard Bookstall, Karachi. Standard Bookstall, Quetta. Standard Book Depot, Lahore, Dalhousie and Delhi. Standard Law Book Society, 69, Harrison Road, Calcutta. Tara & Sons, Razmak (India), Messrs. B. S. Taraporevala Sons & Co., Bombay, Messrs. D. B. Thacker & Co., Ltd., Bombay. Thacker, Spink & Co., Ltd., Calcutta and Simla. Tripathi & Co., Booksellers, Princes Street, Kalbadevi Road, Bombay, Messrs. N. M. University Book Agency, Kacheri Road, Lahore. Upper India Publishing House, Ltd., Literature Palace, Ammuddaula Park, Lucknow. Varadachary & Co., Madras, Messrs. P. Venkatasubban, A., Law Bookseller, Vellore. Wheeler & Co., Allahabad, Calcutta and Bombay, Messrs. A. H. Young Man & Co. (Regd.), Egerton Road, Delhi.</p>
--	--

* Agent for publications on Aviation only.

GOVERNMENT OF INDIA
METEOROLOGICAL DEPARTMENT

INDIA WEATHER REVIEW, 1936.

ANNUAL SUMMARY

PART B
SNOWFALL

CONTENTS

	Page		Page
Cold Weather Period	B1	South-West Monsoon Period	B3
Hot Weather Period	B2	Retreating Monsoon Period	B5

Published by the Authority of the Government of India

UNDER THE DIRECTION OF

C. W. B. NORMAND, M.A., D.Sc.,

Director General of Observatories

DELHI: MANAGER OF PUBLICATIONS

1937

Price As. 5 or 6d.

List of Agents in India from whom Government of India Publications are available.

(a) PROVINCIAL GOVERNMENT BOOK DEPOTS.

MADRAS :—Superintendent, Government Press, Mount Road, Madras.
BOMBAY :—Superintendent, Government Printing and Stationery, Queen's Road, Bombay.
SIND :—Manager, Sind Government Book Depot and Record Office, Karachi (Sadar).
UNITED PROVINCES :—Superintendent, Government Press, Allahabad.
PUNJAB :—Superintendent, Government Printing, Punjab, Lahore.
CENTRAL PROVINCES :—Superintendent, Government Printing, Central Provinces, Nagpur.
ASSAM :—Superintendent, Assam Secretariat Press, Shillong.
BIHAR :—Superintendent, Government Printing, P. O. Gulzarbagh, Patna.
NORTH-WEST FRONTIER PROVINCE :—Manager, Government Printing and Stationery, Peshawar.
ORISSA :—Press Officer, Secretariat, Cuttack.

(b) PRIVATE BOOK-SELLERS.

<p>Advani Brothers, P. O. Box 100, Cawnpore. Aero Stores, Karachi.* Banthiya & Co., Ltd., Station Road, Ajmer. Bengal Flying Club, Dum Dum Cantt.* Bhatia Book Depot, Saddar Bazar, Ranikhet. Bhawnani & Sons, New Delhi. Book Company, Calcutta. Booklover's Resort, Taikad, Trivandrum, South India. Burma Book Club, Ltd., Rangoon. Butterworth & Co. (India), Ltd., Calcutta. Careers, Mohini Road, Lahore. Chatterjee & Co., 3, Bacharam Chatterjee Lane, Calcutta. Chukerverty, Chatterjee & Co., Ltd., 13, College Square, Calcutta. Das Gupta & Co., 54/3, College Street, Calcutta. Delhi and U. P. Flying Club, Ltd., Delhi.* English Book Depot, Ferozepore. English Book Depot, Taj Road Agra. English Bookstall, Karachi. Fakir Chand Marwah, Peshawar Cantt. Fono Book Agency, Simla. Gautama Brothers & Co., Ltd., Meston Road, Cawnpore. Higginbothams, Madras. Hindu Library, 137/F, Balaram De Street, Calcutta. Hyderabad Book Depot, Chaderghat, Hyderabad (Deccan). Imperial Book Depot and Press, near Jama Masjid (Machhliwalan), Delhi. Indian Army Book Depot, Dayalbagh, Agra. Indian Book Shop, Benares City. Indian School Supply Depot, Central Avenue, South, P. O. Dharamtala, Calcutta. Insurance Publicity Co., Ltd., Lahore. International Book Service, Poona 4. Jacques & Co., Kamptee Road, Nagpur, Messrs. Neston. Jaina & Bros., Mori Gate, Delhi and Connaught Place, New Delhi, Messrs. J. M. Kamala Book Depot, 15, College Square, Calcutta. Karnataka Publishing House, Bangalore City. Keale & Co., Karachi. Kitabistan, 17-A, City Road, Allahabad. Krishnaswami & Co., Teppakulam P. O., Trichinopoly Fort, Messrs. S. Lahiri & Co., Calcutta, Messrs. S. K. Local Self-Govt. Institute, Bombay. London Book Co. (India), Arbab Road, Peshawar, Murree, Nowshera and Rawalpindi. London Book House, 17, Rajpur Road, Dehra Dun, Messrs. The.</p>	<p>Malhotra & Co., Post Box No. 94, Lahore, Messrs. U. P. Malik & Sons, Sialkot City. Minerva Book Shop, Anarkali Street, Lahore. Modern Book Depot, Bazar Road, Sialkot Cantonment and Napier Road, Jullunder Cantonment. Mohanlal Dossabhai Shah, Rajkot. Nandkishore & Bros., Chowk, Benares City. New Book Co. "Kitab Mahal", 192, Hornby Road, Bombay. Newman & Co., Ltd., Calcutta, Messrs. W. Oxford Book and Stationery Company, Delhi, Lahore, Simla, Meerut and Calcutta. Parikh & Co., Baroda, Messrs. B. Pioneer Book Supply Co., 20, Shib Narayan Das Lane, Calcutta, and 219, Cloth Market, Delhi. Popular Book Depot, Grant Road, Bombay. Punjab Religious Book Society, Lahore. Raghunath Prasad & Sons, Patna City. Ram Krishna Bros., Opposite Bishrambag, Poona City. Ram Narain Lal, Katra, Allahabad. Rama Krishna & Sons, Book-sellers, Anarkali, Lahore. Ramesh Book Depot & Stationery Mart, Kashmir Gate, Delhi. Ray & Sons, 43, K. & L. Edwardes Road, Rawalpindi, Murree and Peshawar, Messrs. J. Roy Chowdhury & Co., 72, Harrison Road, Calcutta, Messrs. N. M. Sarcar & Sons, 15, College Square, Calcutta, Messrs. M. C. Sarkar & Co., Ltd., 6, Hastings Street, Calcutta, Messrs. P. C. Standard Book Depot, Lahore, Dalhousie and Delhi. Standard Bookstall, Karachi. Standard Bookstall, Quetta. Standard Law Book Society, 69, Harrison Road, Calcutta. Tara & Sons, Razmak (India), Messrs. B. S. Taraporevala Sons & Co., Bombay, Messrs. D. B. Thacker & Co., Ltd., Bombay. Thacker, Spink & Co., Ltd., Calcutta and Simla. Tripathi & Co., Book-sellers, Princess Street, Kalbadevi Road, Bombay, Messrs. N. M. University Book Agency, Kachari Road, Lahore. Upper India Publishing House, Ltd., Literature Palace, Ammuddaula Park, Lucknow. Varadachary & Co., Madras, Messrs. P. Venkatasubban, A., Law Book-seller, Vellore. Wheeler & Co., Allahabad, Calcutta and Bombay, Messrs. A. H. Young Man & Co., Egerton Road, Delhi.</p>
---	---

* Agents for publications on Aviation only.

GOVERNMENT OF INDIA
METEOROLOGICAL DEPARTMENT

INDIA WEATHER REVIEW, 1936.

ANNUAL SUMMARY

PART C
STORMS AND DEPRESSIONS

CONTENTS

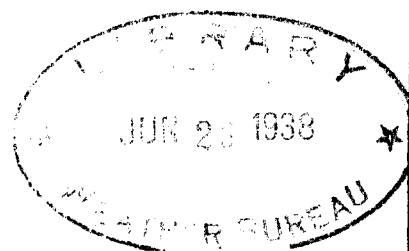
	Page		Page
Depressions and Cyclonic Storms	C 1	Local Storms	C 27
Western Disturbances	C 25	Winds of force nine or more in Indian Seas	C 28

Published by Authority of the Government of India

UNDER THE DIRECTION OF

C. W. B. Normand, M.A., D.Sc.,

Director General of Observatories



DELHI: MANAGER OF PUBLICATIONS
1938

List of Agents in India from whom Government of India Publications are available.

(a) PROVINCIAL GOVERNMENT BOOK DEPOTS.

MADRAS :—Superintendent, Government Press, Mount Road, Madras.
BOMBAY :—Superintendent, Government Printing and Stationery, Queen's Road, Bombay.
SIND :—Manager, Sind Government Book Depot and Record Office, Karachi (Sadar).
UNITED PROVINCES :—Superintendent, Government Press, Allahabad.
PUNJAB :—Superintendent, Government Printing, Punjab, Lahore.
CENTRAL PROVINCES :—Superintendent, Government Printing, Central Provinces, Nagpur.
ASSAM :—Superintendent, Assam Secretariat Press, Shillong.
BIHAR :—Superintendent, Government Printing, P. O. Gulzarbagh, Patna.
NORTH-WEST FRONTIER PROVINCE :—Manager, Government Printing and Stationery, Peshawar.
ORISSA :—Press Officer, Secretariat, Cuttack.

(b) PRIVATE BOOK-SELLERS.

<p>Advani Brothers, P. O. Box 100, Cawnpore. Aero Stores, Karachi.* Banthiya & Co., Ltd., Station Road, Ajmer. Bengal Flying Club, Dum Dum Cantt.* Bhatia Book Depot, Saddar Bazar, Ranikhet. Bhawnani & Sons, New Delhi. Bombay Book Depot, Charni Road, Girgaon, Bombay. Book Company, Calcutta. Booklover's Resort, Taikad, Trivandrum, South India. Burma Book Club, Ltd., Rangoon. Butterworth & Co. (India), Ltd., Calcutta. Careers, Mohini Road, Lahore. Chatterjee & Co., 3, Bacharam Chatterjee Lane, Calcutta. Chukerverty, Chatterjee & Co., Ltd., 13, College Square, Calcutta. City Book Club, 98, Phayre Street, Rangoon. Das Gupta & Co., 54/3, College Street, Calcutta. Dastane Brothers, Home Service, 456, Raviwar Peth, Poona 2. Delhi and U. P. Flying Club, Ltd., Delhi.* English Book Depot, Ferozepore. English Book Depot, Taj Road, Agra. English Bookstall, Karachi. English Bookstores, Abbottabad, N.-W. F. P. Fakir Chand Marwah, Peshawar Cantt. Fono Book Agency, Simla. Gautama Brothers & Co., Ltd., Meston Road, Cawnpore. Higginbothams, Madras. Hindu Library, 137-F, Balaram De Street, Calcutta. H. L. College of Commerce, Co-operative Stores, Ltd., Ahmedabad. Hyderabad Book Depot, Chaderghat, Hyderabad (Deccan). Imperial Book Depot and Press, near Jama Masjid (Machhliwalan), Delhi. Indian Army Book Depot, Dayalbagh, Agra. Indian Book Shop, Benares City. Indian School Supply Depot, Central Avenue, South, P. O. Dharamtala, Calcutta. Insurance Publicity Co., Ltd., Lahore. International Book Service, Poona 4. Jacques & Co., Kamptee Road, Nagpur, Messrs. Neston. Jaina & Bros., Mori Gate, Delhi, and Connaught Place, New Delhi, Messrs. J. M. Kamala Book Depot, 15, College Square, Calcutta. Karnataka Publishing House, Bangalore City. Keale & Co., 65, Britto Road, Karachi Sadar. Keshao Bookstall, Khadibazar, Belgaum. Kitabistan, 17-A, City Road, Allahabad. Krishnaswami & Co., Teppakulam P. O., Trichinopoly Fort, Messrs. S. Lahiri & Co., Calcutta, Messrs. S. K. Local Self-Govt. Institute, Bombay. London Book Co. (India), Arbab Road, Peshawar, Murree, Nowshera and Rawalpindi.</p>	<p>Mackwin & Co., Booksellers, Stationers and News Agents, Inverarity Road, Off Elphinstone Street, Karachi Sadar. Malhotra & Co., Post Box No. 94, Lahore, Messrs. U. P. Malik & Sons, Sialkot City. Mathur, B. S., Book-seller, Civil Lines, Jodhpur. Minerva Book Shop, Anarkali Street, Lahore. Modern Book Depot, Bazar Road, Sialkot Cantonment and Napier Road, Jullundur Cantonment. Mohanlal Dossabhai Shah, Rajkot. Mohendra Bros., Laskar, Gwalior State, Messrs. Nandkishore & Bros., Chowk, Benares City. New Book Co., "Kitab Mahal", 192, Hornby Road, Bombay. Newman & Co., Ltd., Calcutta, Messrs. W. Oxford Book and Stationery Company, Delhi, Lahore, Simla, Meerut and Calcutta. Parikh & Co., Baroda, Messrs. B. Pioneer Book Supply Co., 20, Shib Narayan Das Lane, Calcutta and 219, Cloth Market, Delhi. Popular Book Depot, Grant Road, Bombay. Punjab Religious Book Society, Lahore. Raghunath Prasad & Sons, Patna City. Ram Krishna Bros., Opposite Bishrambag, Poona City. Ram Narain Lal, Katra, Allahabad. Rama Krishna & Sons, Book-sellers, Anarkali, Lahore. Ramesh Book Depot & Stationery Mart, Kashmere Gate, Delhi. Ray & Sons, 43, K. & L. Edwardes Road, Rawalpindi, Murree and Peshawar, Messrs. J. Roy Chowdhury & Co., 72, Harrison Road, Calcutta, Messrs. N. M. Saraswati Book Depot, 15, Lady Hardinge Road, New Delhi. Sarcar & Sons, 15, College Square, Calcutta, Messrs. M. C. Sarkar & Co., Ltd., 6, Hastings Street, Calcutta, Messrs. P. C. Sharada Mandir, Ltd., Nai Sarak, Delhi. Standard Book Depot, Lahore, Dalhousie and Delhi. Standard Bookstall, Karachi. Standard Bookstall, Quetta. Standard Law Book Society, 69, Harrison Road, Calcutta. Tara & Sons, Razmak (India), Messrs. B. S. Taraporevala Sons & Co., Bombay, Messrs. D. B. Thacker & Co., Ltd., Bombay. Thacker, Spink & Co., Ltd., Calcutta and Simla. Tripathi & Co., Book-sellers, Princess Street, Kalbadevi Road, Bombay, Messrs. N. M. University Book Agency, Kachari Road, Lahore. Upper India Publishing House, Ltd., Literature Palace, Ammuddaula Park, Lucknow. Varadachary & Co., Madras, Messrs. P. Venkatasubban, A., Law Book-seller, Vellore. Wheeler & Co., Allahabad, Calcutta and Bombay, Messrs. A. H. Young Man & Co., Egerton Road, Delhi.</p>
--	--

* Agents for publications on Aviation only.

GOVERNMENT OF INDIA
METEOROLOGICAL DEPARTMENT

INDIA WEATHER REVIEW, 1936

ANNUAL SUMMARY

PART D.

SEISMIC RECORDS.

CONTENTS

	Page.
Agra	D 1
Bombay	D 10
Calcutta	D 21
Kodaikanal	D 32
Earthquake Reports	D 40
Publications of the Department	1-6

Published by Authority of the Government of India

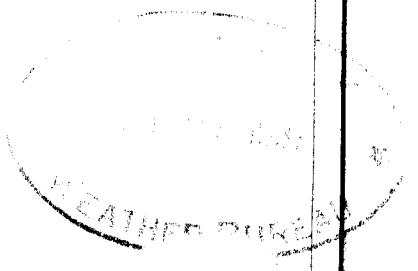
UNDER THE DIRECTION OF

C. W. B. NORMAND, M.A., D.Sc.,

Director General of Observatories.

PUBLISHED BY THE MANAGER OF PUBLICATIONS, DELHI
PRINTED BY THE MANAGER, GOVERNMENT OF INDIA PRESS, NEW DELHI
1937.

Price Rs. 5 As. 12 or 9sh. 6d.



Oct
ADW

List of Agents in India from whom Government of India Publications are available.

(a) PROVINCIAL GOVERNMENT BOOK DEPOTS.

MADRAS :—Superintendent, Government Press, Mount Road, Madras.
BOMBAY :—Superintendent, Government Printing and Stationery, Queen's Road, Bombay.
SIND :—Manager, Sind Government Book Depot and Record Office, Karachi (Sadar).
UNITED PROVINCES :—Superintendent, Government Press, Allahabad.
PUNJAB :—Superintendent, Government Printing, Punjab, Lahore.
CENTRAL PROVINCES :—Superintendent, Government Printing, Central Provinces, Nagpur.
ASSAM :—Superintendent, Assam Secretariat Press, Shillong.
BIHAR :—Superintendent, Government Printing, P. O. Gulzarbagh, Patna.
NORTH-WEST FRONTIER PROVINCE :—Manager, Government Printing and Stationery, Peshawar.
ORISSA :—Press Officer, Secretariat, Cuttack.

(b) PRIVATE BOOK-SELLERS.

<p>Advani Brothers, P. O. Box 100, Cawnpore. Aero Stores, Karachi.* Banthiya & Co., Ltd., Station Road, Ajmer. Bengal Flying Club, Dum Dum Cantt.* Bhatia Book Depot, Saddar Bazar, Ranikhet. Bhawani & Sons, New Delhi. Book Company, Calcutta. Booklover's Resort, Taikad, Trivandrum, South India. Burma Book Club, Ltd., Rangoon. Butterworth & Co. (India), Ltd., Calcutta. Careers, Mohini Road, Lahore. Chatterjee & Co., 3, Bacharam Chatterjee Lane, Calcutta. Chukervetty, Chatterjee & Co., Ltd., 13, College Square, Calcutta. Das Gupta & Co., 54/3, College Street, Calcutta. Delhi and U. P. Flying Club, Ltd., Delhi.* English Book Depot, Ferozepore. English Book Depot, Taj Road, Agra. English Bookstall, Karachi. Faqr Chand Marwah, Peshawar Cantt. Fono Book Agency, Simla. Gautama Brothers & Co., Ltd., Meston Road, Cawnpore. Higginbothams, Madras. Hindu Library, 137/F, Balaram De Street, Calcutta. Hyderabad Book Depot, Chaderghat, Hyderabad (Deccan). Imperial Book Depot and Press, near Jama Masjid (Machhliwalan), Delhi. Indian Army Book Depot, Dayalbagh, Agra. Indian Army Book Depot, Daryaganj, Delhi. Indian Book Shop, Benares City. Indian School Supply Depot, Central Avenue South, P. O. Dharamtala, Calcutta. Insurance Publicity Co., Ltd., Lahore. International Book Service, Poona 4. Jacques & Co., Kamptee Road, Nagpur, Messrs. Neston. Jaina & Bros., Mori Gate, Delhi and Connaught Place, New Delhi, Messrs. J. M. Kamala Book Depot, 15, College Square, Calcutta. Karnataka Publishing House, Bangalore City. Keale & Co., Karachi. Kitabistan, 17-A, City Road, Allahabad. Krishnaswami & Co., Teppakulam P. O., Trichinopoly Fort, Messrs. S. Lahiri & Co., Calcutta, Messrs. S. K. Local Self-Govt. Institute, Bombay. London Book Co. (India), Arbab Road, Peshawar, Murree, Nowshera, Rawalpindi. London Book House, 17, Rajpur Road, Dehra Dun.</p>	<p>Malik & Sons, Sialkot City. Messrs. U. P. Malhotra & Co., Post Box No. 94, Lahore. Minerva Book Shop, Anarkali Street, Lahore. Modern Book Depot, Bazar Road, Sialkot Cantt. Modern Book Depot, Napier Road, Jullundur Cantt. Mohanlal Dossabhai Shah, Rajkot. Nandkishore & Bros., Chowk, Benares City. New Book Co., "Kitab Mahal", 192, Hornby Road, Bombay. Newman & Co., Ltd., Calcutta, Messrs. W. Oxford Book and Stationery Company, Delhi, Lahore, Simla, Meerut and Calcutta. Parikh & Co., Baroda, Messrs. B. Pioneer Book Supply Co., 20, Shib Narayan Das Lane, Calcutta and 219, Cloth Market, Delhi. Popular Book Depot, Grant Road, Bombay. Punjab Religious Book Society, Lahore. Raghunath Prasad & Sons, Patna City. Rama Krishna & Sons, Booksellers, Anarkali, Lahore. Ram Krishna Bros., Opposite Bishrambag, Poona City. Ram Narain Lal, Katra, Allahabad. Ramesh Book Depot & Stationery Mart, Kashmere Gate, Delhi. Ray & Sons, 43, K. & L. Edwardes Road, Rawalpindi, Murree and Peshawar, Messrs. J. Roy Chowdhury & Co., 72, Harrison Road, Calcutta, Messrs. N. M. Sarcar & Sons, 15, College Square, Calcutta, Messrs. M. C. Sarkar & Co., Ltd., 18, Shama Charan De Street, and 6, Hastings Street, Calcutta, Messrs. P. C. Standard Bookstall, Karachi. Standard Bookstall, Quetta. Standard Book Depot, Lahore, Dalhousie and Delhi. Standard Law Book Society, 69, Harrison Road, Calcutta. Tara & Sons, Razmak (India), Messrs. B. S. Taraporevala Sons & Co., Bombay, Messrs. D. B. Thacker & Co., Ltd., Bombay. Thacker, Spink & Co., Ltd., Calcutta and Simla. Tripathi & Co., Booksellers, Princes Street, Kalbadevi Road, Bombay, Messrs. N. M. University Book Agency, Kacheri Road, Lahore. Upper India Publishing House, Ltd., Literature Palace, Ammuddaula Park, Lucknow. Varadachary & Co., Madras, Messrs. P. Venkatasubban, A., Law Bookseller, Vellore. Wheeler & Co., Allahabad, Calcutta and Bombay, Messrs. A. H. Young Man & Co. (Regd.), Egerton Road, Delhi.</p>
--	---

* Agent for publications on Aviation only.